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RESEARCHES

INTO THE ORIGIN OF THE

PRIMITIVE CONSTELLATIONS

OF THE

GREEKS, PHOENICIANS AND BABYLONIANS

BY

ROBERT BROWN, JUN., F.S.A., M.R.A.S.

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Ἐν Διὸς κήποις.—SOPHOKLÊS, *Kreousa*, Frag. iv.

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To the

REV. A. H. SAYCE,

Professor of Assyriology in the University of Oxford,

WITH RESPECT AND REGARD.

PREFACE.

The time has at length arrived when by the aid of modern investigation of the history and literature of the ancient nations of Western Asia, it is possible to commence a scientific research into the origin of the classical Constellation-figures. The very fact that these mysterious forms were the common property of the greater part of the earlier civilized world, as they have been accepted and adopted by the whole of modern civilization, invests them with a special and peculiar interest. Such an enquiry is no mere matter of musty antiquarian exploration; it constitutes an important study of the mind of the man of bygone ages. It introduces us alike to the history of great centres of civilization, and to the triumphs and achievements of individual genius. It makes us ponder on some of those first steps upon the path of knowledge which were so hard to take, but which form the foundation of our present vast acquisitions. It reveals to us the religious idea in many variant and most interesting phases. And by the light of cuneiform decipherment, we are enabled to exchange crude conjecture and arbitrary fancies for general certainty and harmonious historical transmission and development. We can see the keen-witted Greek stealing from Western Asia the fire of knowledge, as he was subsequently to rob her of power; and we can observe the mistake by which the introducer is so frequently confounded with the originator.

The reader who may wish to refer to my previous writings on this and kindred subjects will find many of them enumerated under the head of 'Abbreviations'; and I particularly commend to his attention my translation of the *Phainomena* of Aratos. In the *Heavenly Display* I have shown by astronomical arguments that the statements of the Greek poet, wholly incorrect when applied to his own age, are quite applicable to the latitude of Babylôn, cir. B.C. 2084; and that thus astronomy unites with history and archaeology in pointing to the Euphratês Valley as the home of the Signs of the Zodiac and of various others of the ancient Constellation-figures. The present volume of this work is mainly concerned with the Hellenic history of the Signs, including their place in the art of the various nations with whom the earlier Greeks came in contact; and the volume concludes with a notice of the Graeco-Babylonian period of Seleukos and his successors. In the second volume I shall endeavour to trace the Constellation-figures backward from the era of Alexander until their first appearance in the dawn of history. The amount of material available for this purpose will necessarily greatly depend upon whether the Authorities at the British Museum give to the public copies of the great mass of the yet unpublished astronomical tablets.

I have inserted a careful translation of the famous Star-catalogue contained in Ptolemy's *Almagest*, because it is the outcome of all previous stellar lists and is founded on Euphratean materials. I have also appended notes to the Constellation-figures of the Catalogue, showing their earlier history, and, to a considerable extent, explaining their origins. This is done in order that the reader may at once understand the general scheme and theory of the work, and additional illustrations and detail will be added subsequently. I have been already enabled by the aid of Fragments *Sm.* 162; *No.* 83-1-18, 608; and *No.* 81-7-27, 94, combined with the account in Diodôros, ii. 30-31, to reconstruct the Sumero-Semitic Euphratean Planisphere, a diagram of which I propose to give in the second volume of this work.

Whether I differ from or agree with the numerous illustrious scholars whose names occur in my pages, I truly admire their abilities and am grateful to them for efforts which alone have made such a work as this possible. In the spelling of names, I generally adopt the original forms, because they are the most correct. Severe logical uniformity in this matter is not at present attainable. A correct practice is, however, steadily gaining ground, notwithstanding divers violent protests on the part of some of those who think that Time can consecrate error and canonise ignorance. I quite admit that in ordinary conversation it would be absurd to call Calcutta 'Kálíghát': but in a historical work it is not absurd to call Darius 'Dârayavaush,' inasmuch as that was his name. Because the Greeks altered Khshayârshâ into Xerxês, we are not compelled to speak of Louise de Querouaille as Madam 'Carwell' or Madam 'Cure-all.' If the use of a correct form be 'pedantry,' then, instead of playing Macbeth with archaeological correctness, let him appear, as of yore, in a bag-wig and silk stockings.

In a work like the present, addressed to general readers, it is quite unnecessary to use diacritical marks; nor, as a general principle, is anything gained by writing *ḫ*, *ṣ* and *š* for *kh*, *ts* and *sh*. The Heb. *qoph*-sound is better rendered by *q* than by *ḳ*.

The conclusions at which I have arrived represent the results of a study extending over many years, and my special thanks are due to Prof. Sayce and to Mr. T. G. Pinches for much assistance most freely given; whilst, at the same time, I am alone responsible for the statements, theories, and arguments of the work.

Barton-on-Humber:
February, 1899.

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PRIMITIVE CONSTELLATIONS.

CHAPTER I.

Introductory.

The remarkable discoveries in history, archaeology, and linguistics made during the last fifty years, have at length rendered it possible to commence an investigation into the origin of the constellation-figures of the Greeks, Phoenicians, and Babylonians with some prospect of success. Future researches will doubtless, to a great extent, complete the study; but sufficient material is already available for a preliminary effort. As the world at large, with some insignificant exceptions, has for many centuries adopted these mysterious figures, the subject is of world-wide interest; involving also, as it does, highly important questions of psychology, archaeology, history and linguistic, and of the right understanding of the statements of numerous ancient authorities. It is an arduous task, for the student should be familiar, to a considerable extent, alike with the systems of ancient religion and of modern mythologists; with the cuneiform records and with the sacred books of Iran; with recent exploration in the countries bordering on the eastern Mediterranean; with Classical and Arabian authorities, with scriptions, coins and gems. But, like nearly all iginal research, it is highly interesting to the ined mind; and the weighing of evidence, and the investigation of conflicting claims and probabilities, resulting in the production of order out of apparent chaos, although involving laborious effort, is yet most truly fascinating.

It is not this or that system of mythology or standpoint of investigation which will by itself suffice to explain the extraordinary gallimaufrey of myth, history, ritual, and belief which we find in Hellas. The Natural Phenomena theory, anthropology, folklore, and patient and scientific historical investigation must all join hands. At the present time it is especially the latter element which calls for adequate treatment. A century ago and earlier the theory of non-Aryan influence in Hellas reigned supreme. Then came the great German reaction, when the dreams of a mass of bygone ignorance, baseless history and preposterous philology were swept away. Excess in the opposite direction followed as of course. Non-Aryan influence, Semitic influence in Hellas was regarded as almost absolutely imaginary; and the high-water mark of this school was perhaps reached in the assertion that Kadmos (Sem. Qadmôn, Bab.-As. Qadmu) was a purely Greek name. This standpoint, also, has been rightly abandoned; and non-Aryan Asia again invades Europe. Influences Sumero-Akkadian, Babylonian, Assyrian, Hittite, Phoenician, not to mention those of Egypt, are now allowed by all competent students to have made themselves felt in Hellas, borne on the wings of conquest, commerce and colonization. Some scholars concede more, some less to such factors, but, in any case, it is merely a question of degree; and, following in the footsteps of certain great masters, I shall endeavour to show in this, as I have, to some extent, already done in previous works, that the area of these influences was far wider and their permanent effect far deeper than is generally supposed. The writer who, when properly understood, perhaps more than all others enables us to reconstruct the earliest history of continental Hellas, is Pausanias. Of this fact I have given numerous illustrations in a previous work (*Sem.*), which is introductory to the present treatise. There the reader will find, traced in detail, how non-Aryan centres are either responsible for or have greatly affected many of the most remarkable personages of Greek mythology and religion, such as Kronos,[1] Poseidôn, Aphroditê, Dionysos, Hekatê, Hêraklês, Athamas, Kirkê, Palamêdês, and many others. There, too, I have given very briefly some of the results of recent investigation into the character and origin of the ancient Greek constellation-figures, with lists of the names of the Signs of the Zodiac. The result shows that the Greeks received the constellation-names, and nearly all the stories connected with them, not from any savages, but from the highly civilized Phoenicians, who, in turn, like the ancient Arabians, had obtained many of these names from the archaic civilization of the Euphrates Valley. A portion of the intercourse between Greek and Phoenician is matter of history, unquestioned and unquestionable; but a still larger portion although also historic, is veiled by myth and legend, and seen but dimly through the mists of ages ; and thus it is absolutely necessary that, in these astronomical investigations, we should also correctly approach the weighty problem presented by what we call mythology. And it will be found in the sequel that the history, myths, and legends connected with the earlier constellation-figures, bring every one of them within the sphere of Semitic influence. Moreover, we are not concerned with any abstract questions, such as, Might not one race of men have thought out constellation-figures just as well as another ? We have to deal with the history of certain particular forms, and are not to consider anything except the actual facts of the case. And it is only by the patient and scientific disentanglement of the twisted skein of mythology, and by penetrating to its under-meaning, that we can effect the rediscovery of a most interesting period in the latter portion of the morning of the world.

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[1] A critic in *Literature* rejects my derivation of 'Kronos' as 'the Powerful' (lit. 'the Horned'), 'because a deity so-called would certainly have been represented with horns.' On the contrary, what is really certain is that the early Hellenes, when they adopted horned Semitic divinities, *e.g.*, Astartê (= Aphrodîtê) and Êabani the Centaur (= Cheirôn), unhorned them in accordance with the Greek principle of anthropomorphism. I justify this derivation of 'Kronos' both generally and by particular philological instances. My critic refers to a suggestion of Brugmann that Gk. Kronos = Sk. Krānás ('Maker' or 'Creator'). Now a 'maker' or 'creator' is just what Kronos is not, and such a method of identification is really no more than to open a Gk. Dictionary, find some word rather like the Gk. name, and then to assimilate them, regardless of appropriateness in general detail. My suggested explanation is in perfect harmony with the whole myth of Kronos, which I am able to reconcile absolutely in spite of its apparently direct contradictions. In fact another reviewer of *Sem.*, and one whose remarks are mainly a string of abuse (may God forgive these gentlemen as I do, as good Archbishop Tillotson said, in a somewhat similar case), yet felt himself constrained to observe, 'One of the best things in the book is the Kronos myth.'

A great part of Phoenician history and belief is even now unknown to us, but enough has been revealed to enable us to reconstruct its general character. Amongst special aids are the Homeric and Hêsiodic poems, the Fragments of Pherekŷdês Syros (Vide F. G. Sturz, *Pherecydis Fragmenta*, 1824), and of the Phoenician kosmogonies preserved by Eusebios, the *Itinerary* of Pausanias, numerous Inscriptions, the Classic works of Gesenius and Movers, the monographs of Kenrick and Canon Rawlinson, and the researches of Renan, De Vogüé, Lenormant, Clermont-Ganneau, Perrot and Chipiez, Bérard, Gruppe, Cesnola, and others. The various Cuneiform Inscriptions also are constantly shedding fresh light, often in most unexpected places. For Euphratean astronomy we have the invaluable labours of Prof. Sayce, and the highly important works of Oppert, Hommel (*Die Astronomie der alten Chaldäer*, 1892, etc.), Jensen, Epping, Strassmaier, and others; but, at the same time, it is sad to think that such a great mass of valuable material remains unedited and practically inaccessible in the British Museum, since no one except a trained Assyriologist, and one, moreover, possessed of excellent eyesight, can copy it (Vide Bezold, *Catalogue of the Cuneiform Tablets in the Kouyunjik Collection of the British Museum*, 1889-96). *The Cuneiform Inscriptions of Western Asia*, published by the Trustees of the British Museum, will, however, supply the student with many of the most important texts.

For Greek mythological astronomy may be specially named the works of Eudoxos and Aratos (Vide R. B. Jr., *H. D.*); the Star-list contained in the 7th and 8th Books of the *Almagest* (Edited by Francis Baily in *Memoirs of the Royal Astronomical Society*, vol. xiii., 1843; vide *inf.* Chap. III.); various mythological studies by K. O. Müller; Ideler, *Untersuchungen über den Ursprung und die Bedeutung der Sternnamen*, 1809, a work which, strange to say, has never yet been superseded; Sir G. C. Lewis, *An Historical Survey of the Astronomy of the Ancients*, 1862, an admirable compendium of Classical learning, but written by one who had no acquaintance with, and apparently no belief in, the results of cuneiform research, and whose conclusions on many points are therefore utterly erroneous; C. Robert, *Eratosthenis Catasterismorum Reliquiae*, 1878, which also gives the Scholiasts on Aratos and Germanicus, and the corresponding statements in Hyginus; and the *Lexikons* of Hêsychios and Souidas. Mr. E. B. Knobel's *Chronology of Star Catalogues*, 1877, reprinted from the Memoirs of the Royal Astronomical Society, is a most complete and useful work; and in connexion with the subject of ancient astronomy generally, besides the great Classical writers, may be specially named Achilleus Tatios, Manilius, Martianus Capella, Censorinus, Cornutus, Avienus, Gemînos, Nonnos, Lydus, Maximus Tyrius, the *Chrêsmoi Sibylliakoi* (Edit. C. Alexandre, Paris, 1841); the *Rig-Veda*, the Egyptian *Book of the Dead* (Edit. Sir P. le Page Renouf, 1893-7); Dupuis, Biot, Letronne, Chwolsohn (*Die Ssabier und der Ssabismus*, 1856); Lajard (plates, the text is valueless), Menant, Whitney, C. W. King, the numerous works on astrology ancient and modern, Sir Norman Lockyer (*The Dawn of Astronomy*, 1894, reviewed by me in *The Academy*, March 31st, 1894); Albîrûnî, *Chronology of Ancient Nations* (Edit. C. E. Sachau, 1879); Lacouperie (*Western Origin of Chinese Civilization*, 1894); Maspero, F. C. Penrose (*On the Results of an*

Examination of the Orientations of a Number of Greek Temples, 1893); Prof. D'Arcy W. Thompson (*A Glossary of Greek Birds*, 1895; *On Bird and Beast in Ancient Symbolism*, 1895); M. Jean Svoronos (*Sur la signification des types monétaires des anciens*, 1894); De Clercq (*Catalogue*, 1888, Cylindres Orientaux, etc.); Prof. Hilprecht (*The Babylonian Expedition of the University of Pennsylvania*, 1893-6); and the works of Spiegel, Haug, De Harlez, Darmesteter, E. W. West, L. H. Mills, and others on the ancient sacred literature of Persia; Prof. Franz Cumont's elaborate *Textes et Monuments Figurés relatifs aux Mystères de Mithra*, 1894-6; Prof. Roscher's invaluable *Lexikon;* and Daremberg and Saglio, *Dictionnaire des Antiquités*.

Euphratean boundary stones and cylinders, and ancient coins are of great importance in the enquiry. An immense mass of material is still wanting, and must be supplied ere the subject can be treated exhaustively; but, it is the duty of each age to put together the information at its disposal in orderly sequence, so that posterity may be the better able to continue investigation, and thus by widening the area of useful human knowledge we do our best to extend and intensify the range of beneficent human power.

Prof. Max Müller, in his *Contributions to the Science of Mythology*, 1897, has lately given to the world his last pronouncement on the subject, its rise, and its Hyponoia (=Under current of meaning); and has shown himself unwilling to admit the existence of any Semitic influence in Hellas, except in a few trifling and unimportant instances. Mr. Lang, in *Modern Mythology*, 1897, has once more criticised Prof. Müller's general position, and vainly attempted to refute it. Lastly, in the special monograph (*Sem.*) above referred to, and occasioned by these two works, I have endeavoured to vindicate the position of the Aryo-Semitic school of mythologists against the strictures and standpoint of Prof. Müller; whilst at the same time I have shown the futility of Mr. Lang's general attack upon the Natural Phenomena Theory, and the failure of his attempt to introduce the totemism of the North American Indian into regions Hellenic. On the general question of Semitic influence in Hellas, several critics have contented themselves with the unsupported assertion that the works of men like Prof. Duncker and M. Victor Bérard (*De L'Origine des Cultes Arcadiens*, 1894) prove nothing to the purpose. The circumstance merely affords an interesting example of the tremendous sway which 'old Captain Prejudice,' as Bunyan calls him, can exercise even over educated minds. Another habit of the hostile critic is to take some suggested derivation, *e.g.*, Πόσις Ἴτωνος = Ποσειδῶν, to omit from consideration all the circumstances, historical and otherwise, of the myth, and then arbitrarily to reject the suggestion as absurd, or else as being a mere bare possibility. I am well aware that really honest criticism in abstruse subjects is very laborious. It includes the art of taking pains, which is not fashionable at present. What, asks a critic, shall we say to such a derivation as Andromeda from Adâmâth? 'Why, nothing,' I reply, 'if you know nothing about it.' Yet the derivation can be thoroughly justified all the same (Vide *inf.* p. 49). It is only by the careful examination of the whole evidence available that we can arrive at a reasonable conclusion on the merits of any particular case; and to those who are willing to weigh the matter fairly, I address the following pages with complete confidence.[1]

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[1] An amusing instance of reactionary scholarship has been recently supplied by Georg Thiele, *Antike Himmelsbilder*, 1898. Unconvinced by the works of Hommel and Jensen, he holds that the Zodiac was put together by Asiatic Greeks. Noticing that the Astronomical Tablets quoted by Epping and Strassmaier (*Astronomisches aus Babylon*) are subsequent to Alexander, he argues that the knowledge in them was probably derived from Greek sources. This, in the abstract, is perfectly possible; but had Herr Thiele, who, it is almost needless to say, is not an Assyriologist, extended his researches further into the cuneiform records, and been acquainted with such documents, as *e.g.*, *Tablet No.* 85-4-30, 15 (The *Te Tablet*), which belongs to the reign of Dârayavaush I., and is quite unaffected by Greek influence, he would have been aware that the Zodiac was familiar to the Babylonians centuries prior to Alexander. The *Te Tablet*, as we have it, was doubtless, as Mr. Pinches agrees, a copy of an earlier document; for no one in Babylôn was inventing zodiacs about B.C. 500. A single monument such as this, is sufficient to destroy Herr Thiele's whole elaborate theory in a moment. He has read and rejects my view of the Boundary Stones, as expressed in *Z.*; but he does not seem to be acquainted with *H. D.*, which I venture to commend to his attention. He can then attempt to grapple with the astronomical argument for the Babylonian origin of the Zodiac and various other constellations. Of course the Babylonian case does not rest upon any single document, but upon an immense mass of evidence, positive and negative, much of which is treated of in this volume; and also upon numerous Tablets, the more important of which I shall hope to deal with in the second volume of this work. The subsequent portion of Herr Thiele's book, relating to the constellations in classical times, is a learned and valuable performance.

Anyone who may be struck by the parallel between Abraham and Ôriôn, or between Abraham and Lot and Castor and Pollux, and is thereby reminded of Osîris, Xisouthros, Wayland Smith and anybody else, will doubtless read with interest Eduard Stucken, *Astralmythen der Hebraeer, Babylonier und Aegypter*, 1897. For my own part, I will merely observe with Bishop Hall, 'This field is so wide that a man may soon lose himself in it.'

CHAPTER II.

The Primitive Constellations of the Greeks.

By the primitive constellations of the Greeks I mean those which appeared on the uranographic globe of the astronomer Eudoxos of Knidos, cir. B.C. 403-350, and were mentioned in his work the *Phainomena*, a treatise afterwards versified, cir. B.C. 270, by the poet Aratos, who lived at the court of Antigonos Gonatas, king of Makedonia. They thus reappear in the *Phainomena* of Aratos, and consist of the following figures :—

I. NORTHERN CONSTELLATIONS. The *Lesser Bear*, the *Greater Bear*, the *Bearward* or *Ploughman*, the *Serpent*, *Kêpheus*, *Kassiepeia*, *Andromeda*, *Perseus*, the *Delta-shaped* (figure), the *Horse*, the *Dolphin*, the *Charioteer*, the *Kneeler*, the *Lyre*, the *Bird*, the *Eagle*, the *Arrow*, the *Crown*, and the *Snake-holder* (19).

II. CENTRAL OR ZODIACAL CONSTELLATIONS. The *Ram*, the *Bull*, the *Twins*, the *Crab*, the *Lion*, the *Virgin*, the *Claws*, the *Scorpion*, the *Archer*, the *Goat*, the *Water-pourer*, the *Fishes*, and the *Clusterers* (13).

III. SOUTHERN CONSTELLATIONS. *Ôrîôn*, the *Dog*, the *Hare*, *Argô*, the *Sea-Monster*, the *Stream*, the *Fish*, the *Altar*, the *Centaur*, the *Water-snake*, the *Bowl*, and the *Crow* (12).

In this arrangement the *Snake* is included in the *Snake-holder*, and the *Wild-beast* in the *Centaur*. The *Clusterers* (*Plĕiades*) are distinct from the *Bull*. The poet notices, but does not name, the *Southern Crown;* and also refers by name to five particular stars—viz., *Bear-watcher* (*Arktouros*), *Ear-of-corn* (*Stachys*), *Fruit-plucking-herald* (*Protrygêtêr*), *Scorcher* (*Seirios*) and *Dog's-precursor* (*Prokyôn*).

Sir G. C. Lewis observes that K. O. Müller (*Proleg. zu einer Wissenschaftlichen Mythologie*, Eng. edit. by Jno. Leitch, 1844), 'has shown that the astronomical mythi of the Greeks formed an unimportant part of their mythology, and were for the most part unconnected with their religion' (*Astron. of the Ancients*, p. 63). This is perfectly true when applied to the purely Hellenic portion of Greek mythology and religion, and with such a limitation we may quite agree with the further remarks that 'the religion and mythology of the early Greeks had scarcely any reference to astronomy, or to an adoration of the heavenly bodies' (*Ibid.* p. 62); and that 'As the religion and mythology, so the divination of the early Greeks had little connexion with the heavenly bodies' (*Ibid.* p. 70). From these admitted premisses one of two things follows: Either very little notice was taken of 'astronomical mythi' and constellation-figures in early Hellas; or, if, on the contrary, very considerable notice was taken of these things, then the influence which turned thought in this direction was non-Hellenic. As the views of Lewis are merely those of Müller I need not further refer to the former in this connexion, except to mention his obviously weak, and really baseless, remark that 'the constellations of the heavenly sphere *seem* [Italics mine.] to have been gradually formed by the Greeks' (*Ibid.* p. 68). Müller's views 'on Astronomical Mythi,' which form the Appendix to Chapter IX. of his above-mentioned work I shall notice subsequently (Vide *inf.* p. 127).

The Hipparcho-Ptolemy Star-list (Vide *inf.* Chap. III.), which covers the ground from B.C. 150 to A.D. 150, exactly agrees with the enumeration of Aratos, except that the *Snake* and the *Wild-beast* are made separate constellations; *Prokyôn* is raised to the rank of a constellation and has two stars assigned to it; the *Southern Crown* is named as a constellation, the Pleiads are included in the *Bull*, and an altogether fresh constellation, the *Foremost-horse* (Lat. *Equuleus*, the *Colt*), appears. This figure was formed by Hipparchos (Vide Gemînos, *Eisagôgê*, ii.) by way of suggestion from an existing constellation, in accordance with a principle of which we shall find almost endless mythologic and practical examples, and which I term the Law of Reduplication. The Catalogue of Hipparchos, 'who had ventured to count the stars, a work arduous even for the Deity' (Pliny, *Hist. Nat.* ii. 26), consisted, we are told, of 1080 stars. The Catalogue of Ptolemy consists of 1022 stars, of which 914 form constellation-figures, and 108 are unformed (ἀμόρφωτοι). During the period of Classical antiquity subsequent to Aratos, in addition to the case of the *Colt*, two successful attempts were made to increase the number of the constellation-figures. The *Tress* (*Plokamos*) of Bereníkê, queen of Ptolemaios Euergêtês, was by the united efforts of Kônôn, the astronomer of

Samos, and Kallimachos the Alexandrian grammarian-poet, raised to the skies, cir. B.C. 243 (Vide Kallimachos, ap. Catullus, lxvii.; Theôn, in Arat. *Phainom.* 146; Strabo, I. i. 6; Hyginus, *Poet. Astron.* in voc. *Leo*; Pliny, *Hist. Nat.* ii. 71; vide *inf.* p. 61); and Antinoös, the beautiful favourite of the emperor Hadrian, received a similar honour, cir. A.D. 122. Now it is very instructive to observe how Ptolemy treats these two additions to the ancient list, which, to use Strabo's expression respecting the *Tress*, were 'but of yesterday.' To ignore them altogether would not have been easy, especially since the cult of Antinoös (Vide Paus. VIII. ix. 4) was then so prominent a feature. He therefore mentions both; but, declining to enrol them formally among the ancient constellations, places them amongst the unformed stars. The significance of this fact is very great; it goes far to show that the notion that many of the constellations of Aratos were devised by Greek grammarians and poets at a comparatively late period is quite unfounded. And we can now see that this theory arose in part from a false view of *late* Semitic influence in the matter; in part from an inability to otherwise account for the origin of the constellation-figures; and in part from a singular neglect and misunderstanding of the evidence available. It is no reproach to Müller and Lewis that they were unacquainted with the results of Assyriology; but they might certainly have approached the question of constellation-origin with more care and less prejudice. Lewis, in particular, was evidently hardening his heart against the coming discoveries, in precisely the same spirit as that in which Lord

Sherbroke, another excellent Classical scholar, by the aid of a Latin quotation, proved to his own complete satisfaction that even the ruins of Troy had perished. If anyone in the fourth century B.C. had added *Perseus* or *Andromeda* to the constellation-figures, the memory of such a feat would certainly have been carefully preserved. Aratos himself always speaks of the constellations as of unknown antiquity :—

> 'Some man of yore
> A nomenclature thought of and devised,
> And forms sufficient found'—(*H. D.*, 373-5).

The stars are so numerous and so much alike, that some such classification was absolutely necessary to enable men to speak of them with any exactness.

> 'So thought he good to make the stellar groups,
> That each by other lying orderly,
> They might display their forms. And thus the stars
> At once took names and rise familiar now'—(*Ibid.* 379-82).

It is singular how these positive statements of Aratos, who had every means of knowing the facts of the case, have been disregarded. How could he possibly have spoken thus if some Kônôn, fifty or a hundred years before his time, had added this or that constellation-figure ? Such language would in this case have been simply impossible. But there is also another line of consideration which shows the great antiquity of the mass of material embodied in the *Phainomena*. As Proctor has well remarked, 'Grotius erred in asserting that the phenomena of Aratus can be assigned to no fixed epoch and to no fixed place. With the exception of a few which Aratus inserted from his own unskilful observations, all the phenomena will be found, when due correction has been made for the effects of precession, to correspond very satisfactorily with a latitude between 38° and 41° and an epoch about four thousand years ago.' And this circumstance affords a most positive proof not merely of the high antiquity of comparatively developed astronomical observation; but also of the significant fact that the ancient constellational arrangement of the heavens is not Hellenic in origin. That Aratos was personally innocent of any scientific astronomical knowledge, all the world has always agreed with Cicero. But such a mass of astronomical statement as is contained in the *Phainomena* when recorded by the unlearned, can only represent a crystallized tradition; and this deduction of refined common sense is, if possible, rendered more certain when the statements are mainly incorrect if applied to the time when they are committed to writing, but may have been true at some time and in some locality. In a special monograph (*C. E. A.*), I have shown that the statements of Aratos in reference to the principal stars near the equator, exactly agree with the actual state of things at the vernal equinox B.C. 2084, a date when the Euphratean formal scheme or chart of the heavens had been already completed. Ere passing on, I may observe that Aratos supplies us with an excellent illustration of the worthlessness of the argument from silence, which is naturally a great stronghold of Müller and his followers.. Thus, there is no mention in the *Phainomena* of any particular stars in the *Crab;* but in the poet's companion work, the *Diosêmeia*, 160-76, there is a somewhat elaborate account of the *Manger* (*Phatnê*) and the *Asses* (*Onoi*=*Asellus Boreus* and *Asellus Australis*), as connected with rainy weather. These names also occur in Ptolemy's List, and had the *Diosêmeia* been lost, the adherents of the argument from silence might, acting on their usual lines, have triumphantly asserted that the *Manger* and *Asses* were unknown to Aratos.

In the interval between Augustus and Queen Elizabeth occasional efforts were made to add to the canon of constellations; but, except in the case of *Antinöos*, without much success. Thus, Pliny speaks of 'Item quem sub Divo Augusto cognominavere *Caesaris Thronon*' (*Hist. Nat. ii.* 71); and, again, he refers to the 'vastitas caeli immensa, discreta altitudine in duo atque septuaginta signa' (*Ibid.* 41). Minsheu defines an 'asterisme' as a 'configuration of fixed starres, an imaginarie forme devised by the astrologers, the better to conceive and distinguish asunder the fixed starres, of which are reckoned eighty-four in all, besides a few found out of late by the discoverers of the South Pole' (*Dictionary*, 1625, in voc. *Asterisme*). The latter constellations are those formed by Bayer, cir. 1603, viz., the *Bird-of-Paradise* (*Apus*), the *Chameleon*, the *Sword-fish* (*Dorado*), the *Crane* (*Grus*), the *Water-snake* (*Hydrus*, an instance of reduplication), the *Indian*, the *Fly* (*Musca*), the *Peacock* (*Pavo*), the *Phoenix*, the *Toucan*, the *Flying-fish* (*Piscis Volans*) and the *Southern Triangle* (*Triangulum*, another instance of reduplication). Amongst the Signs referred to by Pliny and Minsheu were probably included various well-known parts of several of the ordinary constellations, *e.g.*, the *Goat* and *Kids*, the *Sickle* (in *Leo*), the *Sword* (of *Ôrîôn*), etc., and perhaps also some individual stars. For the term *sign*, like its Babylonian equivalent *kakkabu*, Heb. *kôkhâbh*, is at one time applied to a single star, and at another to a constellation. In this work I use the word 'asterism' in its modern sense, viz., a small cluster of stars forming part of a constellation. A unique German MS. in my possession belonging to the latter part of the XVth century, contains several constellation-figures which I have never met with elsewhere (Vide R. B. Jr., *On a German Astronomico-Astrological Manuscript, and on the Origin of the Signs of the Zodiac.* In *Archaeologia*, Vol. XLVII. Part. ii. On the subject of constellations generally, vide R. B. Jr., *E.*). In 1690 the *Giraffe* (*Cameleopardalis*), *the Hunting-dogs* (*Canes Venatici*), the *Lizard* (*Lacerta*), the *Lesser Lion* (*Leo Minor*, an instance of reduplication), the *Lynx*, the *Unicorn* (*Monoceros*), the *Sextant* (*Sextans*), the *Fox* and *Goose* (*Vulpecula* et *Anser*), and the *Shield* (*Clypeus*) of Sobieski were added by Hevelius. Other constellation-figures, many of which are not recognized in the Catalogue of the British Association, have been added subsequently. They may be found in Bode, *Uranographia*, Berlin, 1801, but as they nearly all represent merely an arbitrary and tasteless fancy, so far as the present work is concerned, 'fugiunt sine nomine turba.'

In a special monograph (*E. S. R.* Part V.) I have shown that the original Sumero-Akkadian Lunar Zodiac, adopted by the Semitic Babylonians, was the parent and original of all the Lunar Zodiacs of the Old World. Of these we possess at least seven complete specimens—the Persian, Sogdian, Khorasmian, Chinese, Indian, Arab, and Coptic schemes.

The constellations of the Greeks were ultimately accepted and adopted by the Persians, Indians (Vide

Weber, *Hist. of Indian Literature*, 1878), and Arabs, and by the nations of Western Asia generally; and also by the Romans, from whom they have been borrowed by the modern world. This diffusion being subsequent to the era of Alexander, does not fall within the scope of the present investigation.

The Arabs from a remote antiquity had possessed a scheme of lunar mansions (Vide *Qurân*, x. 5; xxxvi. 39), and had mapped out the heavens into stellar groups. This system was in part original, and in part derived from the civilization of the Euphrates Valley. Prof. Hommel has attempted to give a few illustrations of this latter connexion, but the subject is still in its infancy. The researches of Glaser (*Skizze der Geschichte Arabiens von den ältesten Zeiten bis zum Propheten Muhammad*, 1889; *Die Abessinier in Arabien und Africa*, 1895) and Hommel indicate the great importance of Arabia as a factor in early civilization, both in connexion with writing and religion. I may also note in passing that Prof. Hommel (*Die Identität der Altesten Babylonischen und Aegyptischen Göttergenealogie und der Babylonische Ursprung der Aegyptischen Kultur*, 1892; etc.) has brought forward a mass of evidence, tending to show that, in origin, the wisdom of the Nile comes from that of the Euphrates.

China, again, has possessed from a remote period a large number of independent constellation-figures (Vide the Uranographic Maps of the Chinese heavens in Williams, *Observations of Comets, from* B.C. 611 *to* A.D. 1640, *extracted from the Chinese Annals*, 1871); but, at the same time, as my lamented friend Terrien de Lacouperie (*Western Origin of the Early Chinese Civilization*, 1894) has shown, in a large number of instances Euphratean civilization has left its impress upon Chinese Astronomy. The *Uranographie Chinoise*, 1875, of Schlegel is already obsolete (On this subject, vide Edkins, *When did Babylonian Astrology enter China?* 1887).

Although Egypt may have obtained her god-system or a very important portion of it from the Euphrates Valley, she was not indebted to any foreign region for her original scheme of constellations, which are entirely or almost entirely distinct from those of Babylonia, Phoenicia, Kanaan and Greece (Vide Sir P. le Page Renouf, *Calendar of Astronomical Observations found in Royal Tombs of the XXth Dynasty*, 1874; *The Egyptian Book of the Dead*, Parts I.-VI., 1893-7; Maspero, *The Dawn of Civilization*, 1894, pp. 89-97).

Such, then, with the systems of Phoenicia, Palestine, Syria, and the Euphrates Valley, were the principal schemes of constellation-figures known to antiquity. And having thus defined the primitive constellations of the Greeks, and, by glancing at the astronomical history of some other countries with which we are not here specially concerned, perhaps made the course of the enquiry somewhat clearer to the reader, and removed certain possible misapprehensions, I will next draw special attention to the constellations in question, as they appear in that most valuable record the Hipparcho-Ptolemy Star-list.

1898

CHAPTER III.

The Hipparcho-Ptolemy Star-list.

The stellar Catalogue of Ptolemy contained in his *Almagest* (Vide *inf.* p. 25), occupies a unique position in the history of sidereal observation. It at once sums up and epitomizes the results of the early star-gazers of Hellas and of Western Asia; whilst it supplies the foundation for the efforts of mediaeval astromomers, Aryan, Semitic, and Turanian. Alphonso of Castile in the West, the great school of Arabian astronomers, and the enlightened Tatar Ulugh Beigh in the East, alike base their researches upon this Star-list; whilst, in astronomical matters generally, Ptolemy, as it has been well expressed, continues to be 'the only source of reference for a period of fourteen centuries. The Star-list of Ptolemy is practically that of Hipparchos. 'It is supposed,' says Francis Baily, in his admirable edition, 'to be the Catalogue of Hipparchus reduced by Ptolemy to his own time, by increasing the longitudes 2° 40′, and leaving the latitudes undisturbed.' 'It seems not unlikely,' observes De Morgan, 'that in the main this catalogue is really that of Hipparchus. . . . This catalogue is pretty well shown by Delambre (who is mostly successful when he attacks Ptolemy as an observer) to represent the heaven of Hipparchus, altered by a wrong precession, better than the heaven of the time at which the catalogue was made. And it is observed [by Delambre] that though Ptolemy observed at Alexandria, where certain stars are visible which are not visible at Rhodes (where Hipparchus observed) none of those stars are in Ptolemy's Catalogue' (*Dict. Gk. and Rom. Biog. and Mythol.* 1867, iii. 576). De Morgan sums up Ptolemy as 'a splendid mathematician and an indifferent observer.' The single fact that the List does not include stars visible at Alexandria but not at Rhodos, is alone almost sufficient to prove that Ptolemy was the editor of the compilation of Hipparchos. The new edition, as of course, embodied certain differences. Thus, as we are told on the somewhat doubtful authority of a work entitled *Eratosthenous en Allô Hipparchou eis ta Aratou Phainomena*, cap. vi. (Vide Petavius, *Uranologion*, 1630, p. 262), Hipparchos asserted that the stars were 1080 (απ′) in number, whereas Ptolemy's List contains only 1022. Baily explains how the latter number is arrived at: 'There are three duplicates (Nos. 147, 400, and 1011) which make up the number 1028 in the catalogue.' Ptolemy reckons only 1022; for, besides those three duplicates, he likewise omits πλόκαμος (Nos. 494, 495, and 496) in all his enumerations.' This circumstance, again, betokens an editor, not one who wished to bring the whole subject quite up to date. Pliny, having spoken of 'the 72 Signs' (Vide *sup.* p. 16), continues, 'In his quidem mille sexcentas annotavere stellas' (*Hist. Nat.* ii. 41). If 1600 stars had been separately observed by the time of Pliny, it is clear that far more than 1022 were known to astronomers in the time of Ptolemy. Here again, therefore, we see that his List has no pretentions to be an exhaustive

Catalogue of the stars. In the absence of more positive evidence respecting the real number of stars in the original List of Hipparchos, it is not worth while to enter on any speculations as to the reason of the difference between the numbers 1080 and 1022.

The foregoing reasons for assuming the practical identity of the Lists of Hipparchos and Ptolemy have been purely astronomical; but there are also a number of archaeological and literary considerations which point to the same conclusion. Many of these, which are based on matters of detail, will appear in the examination of the List. But, looking at the subject generally, let us remember for a moment that Hipparchos had before him the constellation-figures of Aratos, and that he made a Star-list longer than that of Ptolemy. The latter, therefore, must either have practically adopted the List of his predecessor, or else have entirely altered the constellation-figures. There would be no third place for him in which to put his stars. Now there is not only no evidence to show that Ptolemy did entirely alter the constellation-figures, but an infinite number of reasons, archaeological and otherwise, apparent to the careful investigator, which make it clear that he did not. There would, as of course, be certain minor differences between the two Lists; nothing remains exactly the same for centuries. The A. V. of the Bible to-day is not precisely that which left the press in 1611. One of these minor differences Ptolemy has recorded. The star *a Arietis* is, in some respects, one of the most important in the heavens. In Ptolemy's List it is an unformed star, and is described as 'The one above the head [of the Ram], which Hipparchos (places) at the muzzle.' From this we learn (1) that this star was not one of the unformed in the List of Hipparchos; and (2) that Hipparchos, as we might otherwise have been certain was the case, described the stars in connexion with the constellation-figures. Further, as there is no other similar reference to Hipparchos in the List of Ptolemy, the very strong inference is that the other stars, or most of them, occupied similar positions in both Lists. To take another instance: Hipparchos, as noticed (*Sup.* p. 12), for some reason or other, added that rather absurd constellation the *Colt*. This is faithfully reproduced in the List of Ptolemy, as a legitimate Sign, and not one to be put in the same category with *Antinoüs* and the *Tress*. Lastly, Ptolemy had the work of Hipparchos, both his MS. and his globe, before him; for, as Montucla observes, 'Ptolemy, desiring to prove that the relative position of the stars had not changed since Hipparchus, requests that they may be compared with the positions on the solid globe of that astronomer' (*Hist. des Mathématiques*, i. 264). In the same way the Catalogue of Ulugh Beigh, containing 1019 stars, and completed in July, 1437, is practically identical with the List of Ptolemy. There are some slight differences between the two; but the process was that Ulugh Beigh, having Ptolemy's List before him, observed all or nearly all of the stars contained in it, and ascertained their latitudes and longitudes. Ptolemy himself had dealt similarly with the List of Hipparchos. According to Pliny (*Hist. Nat.* ii. 24), it was the observation by Hipparchos, 'nunquam satis laudatus,' of a new star ('novam stellam et aliam in aevo suo genitam deprehendit') which induced him to make as complete a catalogue as possible of the stellar host, in order that subsequent changes, whether of addition or subtraction, might be duly noted. The List has been roughly translated by Delambre, and has naturally received much attention, but always, so far as I am aware, in a purely astronomical connexion. The present work is only incidentally of an astronomical character; and therefore we are not concerned with the merely astronomical errors either of Ptolemy or of his successors, or with the discordant readings of MSS. or the blunders of copyists, nearly all of which naturally occur in the notation, and do not effect the standpoint of these researches. Baily collated the principal MSS. with great care. He points out that 'all Ptolemy's descriptions refer to the pole of the ecliptic'; and that Flamsteed has confused the position of various stars 'by referring them to the pole of the equator.' It is necessary to obtain a fairly exact knowledge of this chief of Star-lists, as, on the one hand, it sums up for us the amount and results of Hellenic investigation; and, on the other, it enables us to approach the consideration of the late Babylonian astronomy in the most suitable and natural way. The letter at the end of the description of each star is that by which it has been usually designated since the publication of Bayer's *Uranometria omnium Asterismorum*, 1603. In some cases, however, certain alterations have been made by 'the B. A. Catalogue' (Vide Proctor, *Star Atlas*, 4th edition, 1877, p. 4). The figure in brackets indicates the Ptolemaic magnitude of the star. Ptolemy entitles his List the ῎Εκθεσις Κανονικὴ, which implies that it was no novelty, but the Authorized Version of the constellations and their stars. The List reads as follows:—

‘*The Authorized Exposition of the Star-list in relation to the Northern Hemisphere.*

I.—The Constellation of the *Little Bear.*

1. The one at the end of the tail—α (3).
2. The one after this on the tail—δ (4).
3. The one after this before the outgrowth of the tail—ε (4).
4. The southerly-one of the foremost side of the Oblong—ζ (4).
5. The northerly-one of the same side—η (4).
6. The southerly-one of those in the hindmost side—β (2).
7. The northerly-one of the same side—γ (2).

Seven stars in all, whereof two (are) of the 2nd magnitude, one of the 3rd, four of the 4th.

The Unformed-star near her.

1. The one in a straight line with those in the hindmost side (of the Oblong) and the most-southerly’ (of them). Star a of the 4th magnitude.

Note.

No. 4. ‘The Oblong.’ Πλινθίον = Πλαίσιον, ‘an oblong figure.’ Rendered *quadranguli* (Ulugh Beigh, *Cat.* ap. Hyde, *in voc.*). ‘Αι τῶν πλινθίων ‘υπογραφαί (‘the Outlines of the Oblongs’)=the *Templa* or *Regiones Coeli* (Plout. *Camill.* xxxii.; cf. *Romul.* xxii.) into which the Augurs and their Etruscan masters divided the heavens. The use of this term here is a remarkable indication of the astrological significance attached to the subject. Ptolemy, it must be remembered, was an accomplished astrologer.

II.—‘The Constellation of the *Great Bear.*

1. The one at the end of the muzzle—ο (4).
2. The foremost of those in the two eyes—2 (5).
3. The hindmost of them—π (5).
4. The foremost of the two in the forehead—ρ (5).
5. The hindmost of them—σ^1 and σ^2 (5).
6. The one at the end of the foremost ear—24 (5).
7. The foremost of the two in the neck—τ (4).
8. The hindmost of them—23 (4).
9. The more-northerly of the two in the chest—υ (4).

10. The more-southerly of them—ϕ (4).
11. The one at the left knee—θ (3).
12. The northerly-one of those in the left forefoot at the end of the foot—ι (3).
13. The more-southerly of them—κ (3).
14. The one above the right knee—18 (4).
15. The one below the right knee—15 (4).
16. The one at the back, (one) of those in the quadrilateral—α (2).
17. The one of them at the flank—β (2).
18. The one at the outgrowth of the tail—δ (3).
19. The remaining-one (in the quadrilateral) and (the one) at the hinder-part of the left thigh—γ (2).
20. The foremost of those in the left hind leg at the end of the foot—λ (3).
21. The one following this—μ (3).
22. The one at the bend of the left leg—ψ (4).
23. The most-northerly of those in the right hind leg at the end of the foot—ν (3).
24. The more-southerly of them—ξ (3).
25. The first of the three in the tail after the outgrowth—ϵ (2).
26. The middle-one of them—ζ (2).
27. The third and (the one) at the end of the tail—η (2).

Twenty-seven stars in all, whereof six (are) of the 2nd magnitude, eight of the 3rd, eight of the 4th, five of the 5th.

The Unformed-stars below her.

1. The one below the tail afar towards the south—12 *Can. V.* (3).
2. The one in front of this (and) dimmer—8 *Can. V.* (5).
3. The more-southerly of those between the fore-feet of the *Bear* and the head of the *Lion*—α *Lyncis* (4).
4. The one more-northerly than this—38 *Lyncis* (4).
5. The hindmost of the three remaining and dim ones—10 *Leo. Min.* (dim).
6. The one preceding this—? *Lyncis* (dim).
7. The one besides preceding this—? *Lyncis* (dim).
8. The one between the fore-feet (of the *Bear*) and the *Twins*—31 *Lyncis* (dim).

Eight unformed stars in all, whereof one (is) of the 3rd magnitude, two of the 4th, one of the 5th, four dim.'

Note.

No. 11. 'The *left* knee.' The description of this star, like that of many others in the List, shows that the Catalogue was made from a globe. Looking at the *Bear*-stars from the earth, and imagining this figure of a *Bear*, the star θ would appear to be at the *right* knee; and of course it is so shown on a star-map. In the case of a globe the stellar positions are reversed. Thus the descriptions in the Catalogue being from a globe, we obtain confirmatory evidence that they are in substance, and almost certainly actually, the List of Hipparchos, and made by him from his globe (Vide *sup.* p. 23), which would probably remain in the library at Alexandria until the destruction of the latter by Amrú, pursuant to the orders of the Caliph 'Omar. The globe of Hipparchos would be an improvement on the globe of Eudoxos (Vide *inf.* p. 121); but the scheme of constellations, and their general treatment, except for the slight differences which have been mentioned, would be identical. Thus, on the globe of Eudoxos the *Bear* occupied the same space which she does according to Ptolemy's List; for Aratos says :—

> 'The *Twins* are 'neath her head, in midst the *Crab*;
> And 'neath the hinder legs the *Lion* shines'—(*H. D.* 147-8).

The growth of the *Bear* from her original seven stars was obviously prompted by a desire to make her body of a size corresponding to her tail. The stars adapted themselves very fairly for the purpose, and there was no other constellation in the way. Even the enlarged *Bear* was half surrounded by a vacant space, now occupied by *Leo Minor*, *Lynx*, and *Camelopardalis*. As will be noticed (*Inf.* p. 121) the solid model globe had descended, as an institution, to Eudoxos from the Phoenician-sprung Thalês.

III.—'THE CONSTELLATION OF THE *Serpent*.

1. The one at the tongue—μ (4).

2. The one in the mouth—ν (4).
3. The one above the eye—β (3).
4. The one at the under-jaw—ξ (4).
5. The one above the head—γ (3).
6. The northern-one of the three in a straight line in the first bend of the neck—39 (4).
7. The southern-one of them—46 (4).
8. The middle-one of them—45 (4).
9. The one following these from the east—ο (4).
10. The southern-one of the foremost side of the quadrilateral in the next bend—π (4).
11. The more-northerly-one of the foremost side—δ (4).
12. The northern-one of the hindmost side—ε (4).
13. The southern-one of the hindmost side—ρ (4).
14. The southern-one of the triangle next-in-order in the bend—σ (5).
15. The foremost of the two remaining ones of the triangle—ν (5).
16. The hindmost of them—τ (5).
17. The hindmost of the three in the next and foremost triangle—ψ (4).
18. The southern-one of the two remaining ones of the triangle—χ (4).
19. The more-northerly-one of the two remaining ones—φ (4).
20. The hindmost of the two towards the west of the triangle—27 (6).
21. The foremost of them—ω (6).
22. The more-southerly-one of the three next in a straight line—18 (5).
23. The middle-one of the three—*h* (5).
24. The more-northerly-one of them—ζ (3).
25. The more-northerly-one of the two next towards the west—η (3).
26. The more-southerly-one of them—θ (4).
27. The one of those towards the west in the bend beside-the-tail—ι (3).
28. The foremost of the two situate a considerable distance from this—10 (4).
29. The hindmost of them—α (3).
30. The one following these towards the tail—κ (3).
31. The remaining-one and (that) at the end of the tail—λ (3).

Thirty-one stars in all, whereof eight (are) of the 3rd magnitude, sixteen of the 4th, five of the 5th, two of the 6th.'

Note.

The constellation *Drakôn* is Phoenician(=Kanaanite) in origin, and represents primarily the *Nâkhâsch qadmûn* ('Old Serpent') or the nocturnal and chaotic heavens personified in monstrous form, drakontic or serpentine. This name Pherekýdês Syros translated by γέρων 'Οφίων, and in his kosmogony related how Ophiôn, otherwise Ophiôneus, and Eurynomê ruled at first over the world until they were overthrown by Il (Kronos) and Ammâ (Rhea). This serpentine creature is also necessarily the guardian of the stars (=golden apples) which hang from the Pole-tree in the Garden of Darkness; and his consort is *Erebhno'emâ* ('Beautiful-night') = Eurynomê. But, as the darkness of night is necessarily connected with the departure of the sun, the Bab.-As. *eribu* = 'sunset' (*i.e.*, darkness), the verb *eribu* meaning 'to set' or 'descend'—as the sun. Hence the Heb. *erebh*, 'evening'; the Greek Ἔρεβος, meaning primarily the gloom after sunset, and secondarily the gloom of the Under-world; *Europê*, *i.e.*, the west or sunset side of the world; *Arab*, the dweller *west* of the Euphrâtês Valley. Thus the cave of Skyllê is said to front 'towards the west, to Erebos' (*Od.* xii. 81). The Garden of Darkness becomes, therefore, a garden in the West=the Garden of the Hesperides, at which Hêraklês, as the Sun-god, necessarily arrives, and where he obtains the golden apples, 'idealized quinces' (Hehn, *Wanderings of Plants and Animals*, p 185.), the 'Kydonian [Kretan] apple.' In this western garden Ophiôn, no longer regarded as a monster-god, but simply as a monster, is called *Ladôn* (= Sem. *Letoöh* or *Letaä*, 'lizard,' crawling monster;

cf. *El Lagarto* = 'alligator'); and, as of course, is overcome by the Sun-god (Vide *Katas.* iii.; Schol. Arat. v. 45; Schol. German. in loc.; Hyginus *De Signor.* ii. 3). The stars in this portion of the heavens naturally adapt themselves to the form of a serpent, especially when arranged at a period when the two groups of *Wain*-stars were already recognized. The constellation is alluded to in *Job*, xxvi. 13, as 'the crooked *Serpent* (*Nâkhâsch*); and, in the sphere, the foot of Hêraklês 'is planted on the twisting *Serpent's* head' (*H. D.* 70) in token of his victory.

IV.—'The Constellation of *Kêpheus.*

1. The one at the right foot—κ (4).
2. The one at the left foot—γ (4).
3. The one at the girdle at the right side—β (4).
4. The one attached above the right shoulder—α (3).
5. The one attached above the bend of the right arm—η (4).
6. The one under the same bend and itself attached—θ (4).
7. The one in the breast—ξ (5).
8. The one at the left arm—ι (4).
9. The southern-one of the three at the Tiara—ϵ (5).
10. The middle-one of the three—ζ (4).
11. The more-northerly-one of the three—λ (5).

Eleven stars in all, whereof one (is) of the 3rd magnitude, seven of the 4th, three of the 5th.

The Unformed-stars around him.

1. The one in front of the Tiara—μ (5).
2. The one behind the Tiara—δ (4).

Two unformed stars in all, whereof one (is) of the 4th magnitude, one of the 5th.'

Note.

This constellation is Phoenician in origin. Kêph, the divine Stone, the Baitylos (= Sem. *Bêth-êl*) of Sanchouniathôn, brother of Atlas (Atel, 'Darkness'), is also known as Baal Katsiu, or Qassiu ('Lord-of-the-Promontory') and Baal Tsephôn

(‘Lord-of-the-North,’ or ‘of-the-North-wind’) = Τυφῶν, Τυφάων (Vide R. B. Jr., *O. N. C.* p. 15). Reduplicated in a constellation of the extreme north, the foreign divinity appropriately wears a foreign head-dress, the *τιάρα* (‘turban’); and this circumstance is a good illustration of the valuable indications of origin which the List preserves. No Greek supposed that Kêpheus was of the Hellenic stock, either of men or of gods.

V.—‘THE CONSTELLATION OF THE *Ploughman* (Vide *inf.* p. 279).

1. The foremost of the three in the left hand—κ (5).
2. The middle and more-southerly-one of the three—ι (5).
3. The hindmost of the three—θ (5).
4. The one at the bend of the left arm—λ (5).
5. The one at the left shoulder—γ(3).
6. The one at the head—β (4).
7. The one at the right shoulder—δ (4).
8. The more-northerly of those upon the shepherd's crook—μ(4).
9. The one more-northerly than this at the end of the shepherd's crook—ν^1 ν^2 (4).
10. The more-northerly of the two below the shoulder in the club—η *Coronae* (4).
11. The more-southerly of them—χ (5).
12. The one at the end of the right hand—45 (5).
13. The foremost of the two in the wrist—ψ (5).
14. The hindmost of them—46 (5).
15. The one at the end of the handle of the shepherd's crook—ω (5).
16. The one in the girdle at the right thigh—ε (3).
17. The hindmost of the two in the belt—σ (4).
18. The foremost of them—ρ (4).
19. The one at the right heel—ζ (3).
20. The more-northerly of the three in the left leg—η (3).
21. The middle-one of the three—τ (4).
22. The southern-one of them—υ (4).

Twenty-two stars in all, whereof four (are) of the 3rd magnitude, nine of the 4th, nine of the 5th.

The Unformed-star under him.

1. The saffron-yellow (*ὑπόκιῤῥος*) star between the thighs, called the *Bearward* (Ἀρκτοῦρος), of the 1st magnitude.’

VI.—'THE CONSTELLATION OF THE *Northern Crown.*

1. The bright-one in the *Crown*—α (2).
2. The foremost of all—β (4).
3. The one following this and more-northerly—θ (5).
4. The one yet following this and more-northerly—π (6).
5. The one following the bright-one from the south—γ (4).
6. The one yet following near to this one—δ (4).
7. The one again following after these—ε (4).
8. The one following all those in the *Crown*—ι (4).

Eight stars in all, whereof one (is) of the 2nd magnitude, five of the 4th, one of the 5th, one of the 6th.'

Note.

The *Crown*, which, after the addition of the *Southern Crown* (Vide *sup.* p. 12) to the constellation-list, an alteration probably made by Hipparchos, was called the *Northern Crown*, according to the myth (Vide *Katas.* v., etc.), was bestowed by the Semitic sun-god Dionysos upon his Semitic consort under the name of Ariadnê ('the Very-chaste-one'), the 'Virgin'=Britomartis (Vide *inf.* p. 189) on the occasion of his nuptials in the island of Dia (Naxos). The Great Goddess of the East is pre-eminently a crowned goddess, *e.g.*, the mural crown of Rhea. Says Pliny, 'Emere ac vendere [specially Phoenician accomplishments] instituit Liber Pater. Idem diadema, regium insigne, et triumphum invenit' (*Hist. Nat.* vii. 57; cf. *Ibid.* xvi. 4); that is to say, the Sun-god established civilization, and first triumphantly crowned heaven with his glowing circle. He is pre-eminently the 'King' (Melekh). The Homeric epithet for Ariadnê is Kalliplokamos (*Il.* xviii. 592), 'Having-beautiful-tresses'; and that the Πλόκαμος Βερενίκης (*Sup.* p. 12) was originally considered to belong to Ariadnê is clear. 'They say that her *Tress* is that which is seen at the tail of the *Lion*' (*Katas.* v.). 'Eius et crinem esse, qui fulget sub cauda Leonis'

(Schol. German. in voc. *Corona*). Thus in the heavens we have the *Crown* of Ariadnê, the *Tress* of Ariadnê, and Ariadnê herself as Istar-*Virgo*, the two former being placed as near the *Parthenos* as possible.

VII.—'THE CONSTELLATION OF THE *Kneeler*.

1. The one at the head—α (3).
2. The one at the right shoulder by the arm-pit—β (3).
3. The one at the right arm—γ (3).
4. The one at the bend of the right arm—κ (4).
5. The one at the left shoulder—δ (3).
6. The one at the left arm—λ (4).
7. The one at the bend of the left arm—μ (4).
8. The hindmost of the three in the left wrist—o (4).
9. The northern of the two remaining ones—ν (4).
10. The more-southerly-one of them—ξ (4).
11. The one in the right side—ζ (4).
12. The one in the left side—ε (5).
13. The more-northerly than this at the left buttock—59 (5).
14. The one at the outgrowth of the same [*i.e.*, the left] thigh —61 (4).
15. The foremost of the three in the left thigh—π (4).
16. The one behind this—69 (4).
17. The one yet behind this—ρ (4).
18. The one at the left knee—θ (4).
19. The one at the left shin—ι (4).
20. The foremost of the three at the end of the left foot—77 (6).
21. The middle-one of the three—82 (6).
22. The hindmost of them—30 *Draconis* (6).
23. The one at the outgrowth of the right thigh—η (4).
24. The more-northerly-one than it and in the thigh—σ (4).
25. The one at the right knee—τ (4).
26. The more-southerly-one of the two below the right knee—φ (4).
27. The more-northerly-one of them—ν (4).
28. The one in the right shin—χ (4).
29. The one at the end of the right foot, identical with that at the end of the shepherd's crook—ν^1 and ν^2 *Boôtis* (4).

Twenty-eight stars in all without this, whereof six (are) of the 3rd magnitude, seventeen of the 4th, two of the 5th, three of the 6th.

The Unformed-one outside him.

1. The more-southerly than that in the right arm, one star of the 5th magnitude'—ω.

Note.

This constellation is Euphratean in origin and was known as (Ak.) *Lugal*, (Bab.-As.) *Sarru* ('the King'). It originally represented the kneeling Sun-god, sometimes overcoming the Lion, sometimes shooting at the Demon-birds. Adopted by the Phoenicians, it became Melqârth-*Harekhal* (Hêraklês), and is reproduced on coins, etc. (Vide *inf.* pp. 199, 234).

VIII.—'The Constellation of the *Lyre*.

1. The bright-one at the shell called the *Lyre*—α (1).
2. The northern-one of the two lying by the side of it near together—ε (4).
3. The more-southerly-one of them—ζ (4).
4. The one behind these and in the middle of the outgrowth of the horns (of the *Lyre*)—δ; δ^2 (4).
5. The northern-one of the two lying together in the (figure) of the shell towards the east—η (4).
6. The more-southerly-one of them—θ (4).
7. The more-northerly of the two foremost ones in the crossbar—β (3).
8. The more southerly-one of them—ν^1, ν^2 (4).
9. The more-northerly of the two hindmost ones in the crossbar—γ (3).
10. The more-southerly-one of them—λ (4).

Ten stars in all, whereof one (is) of the 1st magnitude, two of the 3rd, seven of the 4th.'

Note.

The Hellenic myth connected with the constellation is the comparatively late story of Hermês, 'der Windgott' (Roscher), 'the Lord of cloud' (Ruskin), as the inventor of the Lyre from the Tortoise, which is related in the Homeric Hymn *Eis Hermên*. But the earlier history of the Sign is twofold, Euphratean and Phoenician. On the Euphratean side it was originally *Raditartakhu* (*W. A. I.* II. lviii. 52), the third of the three Birds opposed to Hêraklês. Thus, its chief star, 'steel-blue *Vega*, The zenith-queen of the heavenly lyre' (R. B. Jr., *The Ascent of Souls*, iv.), is *Al-Nesr-al-Wâki* (Vide Ulugh Beigh's *Star Catalogue*, *in voc.*), *Vultur cadens*, 'the Falling Grype,' and the *Wega* of the Alphonsine Tables. According to an Arab commentator on Ulugh Beigh, the stars ϵ and ζ represented the two wings of the 'Grype,' by drawing in which he let himself swiftly down to the earth. On the Phoenician side, *Lyra* is a musical instrument, also specially connected with Hêraklês, who, with his lyre, kills Linos (Apollod. II. iv. 9, etc.), the Phoenician dirge *Ai-Lênu* ('Alas for us!') personified. The Homeric name for the lyre is φόρμιγξ, and it is probable that λύρα, as E. R. Wharton (*Etym. Grae.*, 1882, *in voc.*) suggests, is a Semitic word; like *kithara* (=Eng. *guitar*), *nabla* (=Sem. *nebel*), *kinura* (=Sem. *kinnôr*), *samlukê* (=Sem. *sabkah*), and *othonê* (=Sem. *etôn*). This view is confirmed by the account of the constellation in Aratos. He names it *Xelus* ('the Tortoise'), and says: 'This, whilst yet Encradled, Hermês pierced and called it *Lyre*' (Λύρην δέ μιν εἶπε λέγεσθαι. *Phainom.* 269). The reasonable interpretation of the passage is that the latter term was a new and foreign name.

IX.—'THE CONSTELLATION OF THE *Bird*.

1. The one at the mouth—β (4).
2. The one behind this at the head—φ (5).
3. The one in the middle of the neck—η (4).
4. The one in the breast—γ (3).
5. The bright-one in the tail—α (2).
6. The one in the bend of the right wing—δ (3).
7. The southern-one of the three in the flat of the right wing —θ (4)

8. The middle-one of the three—ι^2 (4).
9. The northern-one of them and (that) at the end of the flat (of the wing)—κ (4).
10. The one at the bend of the left wing—ε (3).
11. The more-northerly-one of these and (that) in the middle of the same wing—λ (4).
12. The one in the end of the flat of the left wing—ζ (3).
13. The one at the left foot—ν (4).
14. The one at the left knee—ξ (4).
15. The foremost of the two in the right foot—o^1 (4).
16. The hindmost of them—32 (4).
17. The nebulous-one at the right knee—ω^1 (5).

Seventeen stars in all, whereof one (is) of the 2nd magnitude, five of the 3rd, nine of the 4th, two of the 5th.'

Note.

The Ὄρνις μέγας or Swan, a bird sacred to Aphrodîtê, is connected in Hellenic myth with the crowned (Vide *inf.* p. 37) goddess of Rhamnous in Attikê (Vide *Katas.* xxv. etc.), whose temple stood 'a little way from the sea' (Paus. I. xxxiii. 2), and whose name the Greeks translated by Nemesis, *i.e.*, the Power-which-distributes-what-is-due, in later times generally understood as the Power which recompenses evil men according to their deeds. In origin she is the Semitic goddess of destiny or good fortune, whom Nonnos (v. 70) calls 'the blue-eyed Mênê' and identifies with Athênê Onka ('the Burning') a Phoenician goddess of Thebes. Sanchouniathôn (i. 6) names her Εἱμαρμένη (= Sem. *Aimer*, 'word,' 'speech,' + Meni), Destiny (= *Fatum*, 'the Spoken-word'). She is Gîddê, goddess of good luck, and forms a divine couple with Gad. They appear together in Is. lxv. 11 : 'But as for you that forsake Yahveh, . . . that prepare a table for Gad (= the Fortune-god), and that furnish the drink offering unto Meni.' The name means 'Number,' *i.e.*, the lucky number. So in *Dan.* v. 25 : 'Menê,

Menê'='numbered,' repeated to show irrevocable determination. 'The Babylonian goddess of Fate is called by Zonaras (lxv. 11) Meni, and is translated Τύχη, Fortuna' (Bunsen, *Egypt's Place*, iv. 253). An Etruscan mirror (Gerhard, *Et. Spiegel*, No. cccxxii.) shows, Atûnis (=Adônis, Ph. Adôni, 'My Lord') embraced by Turan (=*a*-*Tê*-OURAN-*ia*), whilst a huge Swan (= the ὄρνις μέγας), called *Tusna*, stretches its head lovingly upwards, and almost touches the crown (Vide *sup.*) of the goddess. Prof. Sayce informs me that the As. name of the swan is supposed to be *tussu*. The Rev. Wm. Houghton wrote me with reference to the above representation: 'I have been unable to discover any Hebrew, Assyrian, or Phoenician name for the swan. However, *Tusna* on the mirror seems to be, as you suggest, the Et. form of a Semitic swan-word.' Thus, in *Tusna* we probably have a Sem. swan-word with an Et. ending (*na*); and it supplies an interesting instance of that direct connexion between Etruria and Phoenicia, of which there must have been so much, and about which we know so little.

X.—'THE CONSTELLATION OF *Kassiepeia*.

1. The one at the head—ζ (4).
2. The one in the breast—α (3).
3. The one more-northerly than this and at the girdle—η (4).
4. That which is above the seat, over the thighs—γ (3).
5. The one in the knees—δ (3).
6. The one above the ankle—ε (4).
7. The one at the end of the foot—ψ (4).
8. The one at the left arm—θ (4).
9. The one below the bend of the left arm—φ (5).
10. The one at the right fore-arm—σ (6).
11. The one above the seat of the chair—κ (4).
12. The one in the middle of the back of the recumbent-chair —β (3).

13. The one at the extremity of the back of the recumbent-chair —ρ (6).

Thirteen stars in all, whereof four (are) of the 3rd magnitude, six of the 4th, one of the 5th, two of the 6th.'

Note.

The Baal of the North (Vide *sup.* p. 30) had, as of course, his female reflexion or Baalâth (Baaltis, Beltis), and she was the beautiful Eurynomê of the Zeus Kasios, otherwise called Qassiu-peaêr (cf. Heb. *peaêr*, 'beautiful', 'rosy-faced', Rhodê-Rhodeia), = Kassiepeia, a name which, according to Souidas (*in voc.*) signified Kallonê ('the Beauty.' Cf. Kallistê-Kallistô). Zeus Kasios had a celebrated temple at a place called Kassiopê in Korkŷra, whither his cult had been probably brought by the early settlers from Euboia. In the cuneiform we meet with 'the goddess Kas-se-ba' (*W. A. I.* III. lxix. 67).

XI.—'The Constellation of *Perseus*.

1. The nebulous combination at the end of the right hand—χ (nebulous).
2. The one at the bend of the right hand—η (4).
3. The one at the right shoulder—γ (3).
4. The one at the left shoulder—θ (4).
5. The one at the head—τ (4).
6. The one at the broad of the back—ι (4).
7. The bright-one in the right side—α (2).
8. The foremost of the three behind the one in the side—σ (4).
9. The middle one of the three—ψ (4).
10. The hindmost of them—δ (3).
11. The one at the bend of the left arm—κ (4).
12. The bright-one of those in the Gorgon-head—β (2).
13. The one behind this—ω (4).
14. The one in front of the bright-one—ρ (4).
15. The one yet in front of this and the remaining-one—π (4).
16. The one in the right knee—*b* (4).
17. The one before this and above the knee—λ (4).
18. The foremost of the two above the bent knee—48 (4).
19. The hindmost and at the same bend—μ (4).

20. The one at the calf of the right leg—53 (5).
21. The one at the right ankle—58 (5).
22. The one in the left thigh—ν (4).
23. The one at the left knee—ε (3).
24. The one at the left leg—ξ (4).
25. The one at the left heel—ο (3).
26. The one behind it at the end of the left leg—ζ (3).

Twenty-six stars in all, whereof two (are) of the 2nd magnitude, five of the 3rd, sixteen of the 4th, two of the 5th, one nebulous.

The Unformed-stars around him.

1. The one towards the east of that at the left knee—52 (5).
2. The one on the north of those in the right knee—2 *Camel.?* (5).
3. The one in front of those in the Gorgon-head—16 (dim).

Three stars in all, whereof two (are) of the 5th magnitude, one dim.'

Note.

Amongst the personages in the Phoenician kosmogony are the brothers Schamêmêrum (Vide *inf.* p. 40) and Ousôös, 'who was the first who made clothes of the skins of animals which he slew [= Hêraklês in the Lion-skin] . . . and was the first who launched a boat [*i.e.*, made the great solar voyage across heaven from east to west. Cf. Hêlios in his solar boat-cup, which he lent to Hêraklês; Apollôn Delphinios; king Arthur in the barge; the Euphratean Gilgames, who 'crossed all seas'; Melqârth, voyaging in the West; the Egyptian Râ in his solar barque; etc.]. He erected two columns or pillars to Fire (*Isch*) and Wind' (*Qolpîa'h*. Sanch. i. 3); and these two pillars (of Hêraklês) play a great part in Phoenician religious history. Thus Hêrodotos (ii. 44) says:—'I made a voyage to Tyre in Phoenicia, hearing there was a temple of Hêraklês [Melqârth] at that place, very highly venerated. I visited the temple, and found it richly adorned with a number of offerings, amongst which were two pillars, one of pure gold, the other of emerald [glass?], shining with great brilliancy at night' (ap. Canon Rawlinson). Movers has shown that one pillar was dedicated to Schamê-mêrum-Kîyûn (Chiun, Amos, v, 26, whence Gk. Κίων)-Kronos, who, in a planetary aspect, was identified with *Saturn;* whilst the other was dedicated to Ousôös-Khamman-Hêraklês. As Schroeder and Lenormant have proved, such a form as the Gk. Ou-sôös represents an original Bo-sôös (*e.g.*, Ph. *Bo*-dam = Gk. *Ou*-dam) and *Bo* is a contraction of *Bar* (*e.g.*, '*Bo*-milcar pro *Bar*-milcar,' Gesen. *Script. Ling. Ph.* p. 431). Hence, Bo-sôös = BAR-SAV (cf. E-*sau*, *Êsâv*), 'the Son-of-hair,' *i.e.*, 'the Hairy,' Ousôös-Hêraklês, clad in his Lion-skin, = Gk. *Per-seus*, 'most famous of all men' (*Il.* xiv. 320). 'The Hellenes know that Perseus was the founder of Mykênai' (Paus. II. xv. 4).

XII.—'THE CONSTELLATION OF THE *Charioteer*.

1. The more-southerly of the two at the head—δ (4).
2. The more-northerly-one and (the one) above the head—ξ (4).
3. The one at the left shoulder, called the *Goat*—α (1).
4. The one at the right shoulder—β (2).
5. The one at the bend of the right arm—ν (4).
6. The one at the right wrist—θ (4).
7. The one at the bend of the left arm—ε (4).
8. The hindmost of the two at the left wrist called the *Kids*—η (4).
9. The foremost of them—ζ (4).
10. The one at the left ankle—ι (3).
11. The one at the left ankle common to the head of the *Bull*—β *Tauri* (3).
12. The one above this towards the north in the part-about-the-foot—χ (5).
13. The one more-northerly than this at the buttock—φ (5).
14. The little one above the left foot—4 (6).

Fourteen stars in all, whereof one (is) of the 1st magnitude, one of the 2nd, two of the 3rd, seven of the 4th, two of the 5th, one of the 6th.'

Note.

Hellenic legend connected the *Charioteer* with the Athenian king Erichthonios ('Son-of-the-Earth'), who, on account of his telluric antecedents, was, according to some accounts, partly serpentine in form, the Serpent being a creature in Greek idea symbolical of the earth. So Homer speaks of 'the goodly city of Athênai the domain of Erechtheus, whom erst Athênê fostered, and the grain-giving tilth brought him forth, *i.e.*, he was the Autochthôn, 'and she gave him a resting-place in Athênai; and there the noblest of the Athenians make him propitious with the sacrifice of bulls and rams as the years roll round' (*Il.* ii. 546-51). A very interesting Cornetan vase (figured in Roscher, *Lex. in voc.* Erichthonios) shows Gê, a figure half in earth, holding up the child, wholly of human form, who stretches out his arms towards Athêna, whilst the goddess holds out hers to receive him. Behind Gê is Poseidôn, a demi-human figure ending in the huge folds and tail of a sea-monster, Dagôn. There are few representations more full of meaning than this vase-painting. Thus it contains a reference to the great struggle between Poseidôn (Phoenician power) and Athêna (the Hellenic element) for Erechtheus, considered as the primeval inhabitants of Athênai, a struggle which, had it ended in favour of Poseidôn, would have changed the whole face of history. This, however, does not concern us here. What we have to do is to clear up the mystery of the double Erichthonios. There is no reason why Erichthonios, the Athenian Autochthôn, should have been connected with the invention of the chariot, except possibly the ludicrous one suggested by Rabelais (iv. 38);—'What do you think was the cause of Erichthonius's being the first inventor of coaches, litters, and chariots? Nothing but because Vulcan had begot him with chitterlingdiz'd legs; which to hide he chose to ride in a litter.' But all is clear as soon as we remember, and, as, Engelmann, in Roscher's *Lexicon*, notes from Apollodôros (III. xv. 1), that Erichthonios is a 'Beiname des Poseidon.' Behind the little Attik boy, Child of Earth, is the mighty semi-serpentine Poseidôn, 'Êa god of the deep,' and particularly 'of that watery deep, the Okeanos of Homer, which surrounds the earth like a coiled serpent' (Sayce, *Rel. Anct. Babs.* p. 104); and its name, the Sumerian *zuab-abzu*, Sem. *apsu*, seems to have been the origin of the famous magical word ζάψ, said to mean 'the sea' (Vide Clem. Alex. *Strom.* v. 8). Poseidôn himself is Erichthonios, the lord of the abyss below the surface-of-the-earth (χθών); he is the Charioteer, Hipparchos, Hippêgetês, Hippios, Hippodromios, etc.; and he is the god whom men make propitious by the sacrifice of bulls (cf. *Od.* iii. 6; xiii. 181). He 'guards the foundations of the earth beneath' (Oppianos, *Hal.* v. 679). The stormy and earth-shaking divinity is thus connected on the Hellenic side with the stormy *Goat*-star, *Aix-Capella*, the Euphratean *Askar* (Vide *inf.* p. 130). And as *Capella* is 'the Olenian goat' (Vide *inf.* p. 131), so is Poseidôn, Taraxippos ('the Stirrer-up-of-horses'), Ôlenios (Vide Paus. VI. xx. 7, 8). It will also be observed that original Hellenic divinities of the first class are invariably anthropomorphic.

XIII.—'The Constellation of the *Snake-holder*.

1. The one at the head—α (3).
2. The foremost of the two at the right shoulder—β (4).

3. The hindmost of them—γ (4).
4. The foremost of the two at the left shoulder—ι (4).
5. The hindmost of them—κ (4).
6. The one at the bend of the left arm—λ (4).
7. The foremost of the two at the end of the left hand—δ (3).
8. The hindmost of them—ϵ (3).
9. The one at the bend of the right arm—μ (4).
10. The foremost of the two at the end of the right hand—ν (4).
11. The hindmost of them—τ (4).
12. The one at the right knee—η (3).
13. The one at the right leg—θ (4).
14. The foremost of the two at the right foot—A (4).
15. The one after this—*d* (4.)
16. The one yet after this—π (4).
17. The remaining-one and hindmost of the four—*b* (5).
18. The one after these and attached to the heel—*c* (5).
19. The one in the left knee—ζ (3).
20. The more-northerly of the three in a straight line in the left leg—ϕ (5).
21. The middle-one of them—χ (5).
22. The south-one of the three—ψ (5).
23. The one at the left heel—ω (5).
24. The one attached to the hollow of the left foot—ρ (5).

Twenty-four stars in all, whereof five (are) of the 3rd magnitude, thirteen of the 4th, six of the 5th.

The Unformed-stars around him.

1. The more-northerly of the three eastwards from the right shoulder—66 (4).
2. The middle one of the three—67 (4).
3. The southern-one of them—68 (4).
4. The one behind the three and beyond the middle-one—70 (4).
5. The one more-northerly than the four, by itself—72 (4).

Five stars in all, of the 4th magnitude.'

Note.

In this List the *Snake* is made a separate constellation. 'Ophiuchus huge' (Milton) = Asklêpios-Eschmûn (Vide *inf.* p. 168), the 'Eighth' of the Kabîrîm, who stands upon *Skorpios*, the eighth Sign of the Zodiac (Vide *inf.* p. 169).

XIV.—' The Constellation of the *Snake* of the *Snake-holder*.

1. Of the quadrilateral in the head the one at the end of the under-jaw—ι (4).
2. The one attached to the nostrils—ρ (4).
3. The one in the side-of-the-head—γ (3).
4. The one towards the outgrowth of the neck—β (3).
5. The middle-one of the quadrilateral and in the mouth—κ (4).
6. The one outside the head and towards the north—π (6).
7. The one after the first bend of the neck—δ (3).
8. The northern one of the three next-in-order to this—λ (4).
9. The middle-one of the three—α (3).
10. The southern-one of them—ε (3).
11. The foremost-one of the left hand of the *Snake-holder* after the next bend—μ (4).
12. The one after those in the hand—υ *Ophiouchi* (5).
13. The one after the back of the right thigh of the *Snake-holder*—ν (4).
14. The more-southerly of the two behind this—ξ (4).
15. The more-northerly of them—ο (4).
16. The one after the right hand at the bend of the tail—ζ (4).
17. The one behind this in like manner at the tail—η (4).
18. The one at the end of the tail—θ (4).

Eighteen stars in all, whereof five (are) of the 3rd magnitude, twelve of the 4th, one of the 5th.'

XV.—' The Constellation of the *Arrow*.

1. The one by itself at the barb—γ (4).
2. The last of the three in the shaft—ζ (6).
3. The middle-one of them—δ (5).
4. The foremost of the three—α (5).
5. The one at the point of the notch—β (5).

Five stars in all, whereof one (is) of the 4th magnitude, three of the 5th, one of the 6th.'

Note.

As to the *Arrow*, vide *inf.* p. 131. In *Sem.* I have fully explained this constellation-figure, as affording an excellent illustration of the principles here adopted.

XVI.—' The Constellation of the *Eagle*.

1. The one in the middle of the head—τ (4).

2. The one in front of this and at the neck—β (3).
3. The bright one at the broad of the back called the *Eagle* —α (2).
4. The one near this on the north—o (3).
5. The foremost of the two in the left shoulder—γ (3).
6. The hindmost of them—ϕ (5).
7. The foremost of the two in the right shoulder—μ (5).
8. The one behind it—σ (5).
9. The one further off near the tail of the *Eagle* attached to the *Milky Way*—ζ (3).

Nine stars in all, whereof one (is) of the 2nd magnitude, four of the 3rd, one of the 4th, three of the 5th.

The (asterism) near the Eagle, *upon which* Antinoös (*has been placed*).

1. The foremost of the two south of the head of the *Eagle*—η (3).
2. The hindmost of them—θ (3).
3. The one south-west of the right wing of the *Eagle*—δ (4).
4. The one south of this—ι (3).
5. The one still more south than this—κ (5).
6. The foremost of all—λ (3).

Six stars in all, whereof four (are) of the 3rd magnitude, one of the 4th, one of the 5th.'

Note.

The constellation of the *Eagle* is especially interesting both because in this case we can trace very clearly the pre-constellational history of the Sign, and because the original Euphratean name has been preserved. The Sum.-Ak. Eagle was Alâla ('the Great-spirit.' Vide *Gilgames Epic* Tab. vi.), 'the symbol of the noontide sun' (Sayce, *Rel. Anct. Babs.* p. 248). Here we have the pre-constellational history of the Sign, which is subsequently reduplicated in stellar form, as *Kakkab Idkhu*, *ilu Zamama* (otherwise *Zagaga*), 'the constellation the *Eagle*, *i.e.*, the god Zamama.' The principal star of this constellation is also called *Idkhu* (otherwise *Erigu*, *i.e.*, 'the Powerful-bird'), 'the *Eagle*,' Ar. *Al Tair* ('the Great-bird'), the *Altair or Atair* of star-maps;

and this peculiarity, as will be noticed, reappears in the Hipparcho-Ptolemy List (Vide R. B. Jr., *E. S. R.* Part i. pp. 16-17; Part iv. p. 15 *et seq.*). The famous story, preserved by Aelianus (xii. 21), about the Eagle and the Babylonian hero Gilgamos, exactly confirmed Mr. Pinches' discovery that the true reading of the name of the hero of the great solar epic was not Gistubar, but Gilgames. As to *Antinoös*, vide *sup.* p. 13.

XVII.—'THE CONSTELLATION OF THE *Dolphin.*

1. The foremost of the three in the tail—ϵ (3).
2. The more-northerly of the two remaining ones—ι (4).
3. The more-southerly-one of them—κ (4).
4. The southern-one of the foremost side of those in the rhomboidal quadrilateral—β (3).
5. The more-northerly-one of the foremost side—α (3).
6. The southern-one of the hindmost side of the lozenge—δ (3).
7. The northern-one of the hindmost side—γ (3).
8. The southern-one of the three between the tail and the lozenge—η (6).
9. The foremost of the two remaining northern-ones—ζ (6).
10. The remaining and hindmost-one of them—θ (6).

Ten stars in all, whereof five (are) of the 3rd magnitude, two of the 4th, three of the 6th.'

Note.

In Hellenic astronomical myth the Dolphin is the messenger and favourite of Poseidôn (*Katas.* xxxi. etc.). 'Qui Neptuno simulacra faciunt, delphinum aut in manu, aut sub pede ei constituere videmus' (Hyginus, *De Signor.* ii. 17). According to Hyginus, Aglaosthenês, who may possibly have been the author of the Homeric Hymn *Eis Dionyson*, also connected the Dolphin with Dionysos, in his relation of the same story which is the subject of the Hymn (Vide *inf.* p. 293). The Dolphin is therefore naturally associated with Palaimôn-Melqârth (Vide *inf.* pp. 158, 212); and with Apollôn, when the latter is regarded as a sea-crossing Sun-god (Vide *inf.* pp. 185, 243). Houghton considers that the As. *Nakhirú* ('Nostril-animal'), Syr. *Nakhira*, was the Dolphin. Tukulti-pal-esar (Tiglath-Pileser) I., cir. B.C. 1120, says, on the *Broken Obelisk Inscription* (*W. A. I.* I. xxviii. 3), that he killed a *nakhiru* in the Great Sea (the Mediterranean).

XVIII.—'THE CONSTELLATION OF THE *Foremost-part of a Horse.*

1. The foremost of the two in the head—α (dim).
2. The hindmost of them—β (dim).
3. The foremost of the two in the mouth—γ (dim).
4. The hindmost of them—δ (dim).

Four stars in all, dim.'

XIX.—'THE CONSTELLATION OF THE *Horse.*

1. The one at the navel, also belonging to the head of *Andromeda*—α *Androm.* (2).
2. The one at the small of the back and the end of the wing-feathers—γ (2).
3. The one at the right shoulder and at the outgrowth of the foot—β (2).
4. The one at the broad of the back and at the shoulder-blade of the wing—α (2).
5. The more-northerly-one of the two in the body under the wing—τ (4).
6. The more-southerly-one of them—υ (4).
7. The more-northerly-one of the two in the right knee—η (3).
8. The more-southerly-one of them—ο (5).
9. The foremost of the two near-together in the chest—λ (4).
10. The hindmost of them—μ (4).
11. The foremost of the two near-together in the neck—ζ (3).
12. The hindmost of them—ξ (4).
13. The more-southerly-one of the two at the mane—ρ (5).
14. The more-northerly-one of them—σ (5).
15. The more-northerly-one of the two near-together at the head—θ (3).
16. The more-southerly-one of them—ν (4).
17. The one in the muzzle—ε (3).
18. The one in the right ankle—π^2 (4).

19. The one at the left knee—ι (4).
20. The one at the left ankle—κ (4).

Twenty stars in all, whereof four (are) of the 2nd magnitude, four of the 3rd, nine of the 4th, three of the 5th.'

Note.

The *Horse* of Poseidôn the *Charioteer*, is located next his *Dolphin*. But it is also a Demi-horse, a Sea-horse, half seen as it springs upwards out of the Great Deep which is situated in this part of the heavens, into which run the river *Eridanos* and the stream from the *Urn* of *Hydrochoös*, and in which the pair of Tunnies (*Ichthyes*), the *Dolphin*, the *Southern Fish*, the *Sea-monster*, and the *Goat-fish* (*Capricorn*) disport themselves. Of this watery deep Êa-Poseidôn, as we have seen (*Sup.* p. 42), is lord and ruler. In the Euphratean sphere the ecliptic is (Ak.) *Kas-Utu* ('Path-of-the-Sun'), in As. *Kharran-Samsi* (*W. A. I.* III. liii. No. 1, Rev. l. 15); and a portion of this Path and its neighbourhood, *i.e.*, the Great Deep, is naturally 'the region of Êa' (Vide Hommel, *Die Astron. der alten Chal.* iii. 7). As the coin-types show, few of the forms borrowed from Western Asia have more thoroughly impressed themselves upon the Hellenic world than the *Pêgasos*.

XX.—'THE CONSTELLATION OF *Andromeda*.

1. The one in the broad-of-the-back—δ (3).
2. The one in the right shoulder—π (4).
3. The one in the left shoulder—ε (4).
4. The southern-one of the three in the right arm—σ (4).
5. The more-northerly-one of them—θ (4).
6. The middle-one of the three—ρ (5).
7. The southern-one of the three at the end of the right hand—ι (4).
8. The middle-one of them—κ (4).
9. The northern-one of the three—λ (4).
10. The one at the left arm—ζ (4).

11. The one at the bend of the left arm—η (4).
12. The more-southerly-one of the three above the girdle—β (3).
13. The middle-one of them—μ (4).
14. The northern-one of the three—ν (4).
15. The one above the left foot—γ (3).
16. The one in the right foot—54 (4).
17. The one more-southerly than this—51 (4).
18. The more-northerly of the two at the bend of the left leg—50 (4).
19. The more-southerly-one of them—τ (4).
20. The one at the right knee—φ (5).
21. The more-northerly of the two in the robe—49 (5).
22. The more-southerly-one of them—χ (5).
23. The one outside (the figure) and preceding the three in the right arm—ο (3).

Twenty-three stars in all, whereof four (are) of the 3rd magnitude, fifteen of the 4th, four of the 5th.'

Note.

The name *Andromeda*. In Philôn's translation of the Phoenician kosmogonies it is stated that Ouranos married his sister Gê ('Earth'), 'who was so called on account of her beauty.' This statement, as it stands, is unintelligible, and we see at once that its force depends on the Ph. name translated 'Gê.' This, Lenormant admirably renders by Adâmâth ('the female Earth'); or, as *adam*, As. *admu*, 'man,' is 'connected with the root which means to be red' (Sayce, *As. Lect.* p. 145), the 'Ruddy' or 'Rosy-one.' The fair Kassiepeia-Eurynomê (= Sem. *Erebhuo'emâ*)-Derketô, had a beautiful daughter Schachar ('the Morning-red'), beloved of the Sun-god (Vide Gruppe, *Der phoinikische Urtext der Kassiepeia-legende*, 1888), and she is Andromeda ('the Rosy-one'). The Greeks had evidently much difficulty in rendering this name, as their language did not supply them with any forms like 'man-ess' or 'male-ess,' which latter (*i.e.*, the As. *zikarat*) we find in the cuneiform inscriptions. They could not translate *Adâmâth* by *Ἀνδρόγυνος,* which meant something altogether different; and so they translated the first part of the name and transliterated the second, and thus of *Adâm-mâth* made *Andro-med(a)*. The rosy dawn Adâmâth, as in other mythologies, becomes the bride of the Sun-god, Barsav-Perseus.

XXI.—'The Constellation of the *Triangle.*

1. The one in the summit of the *Triangle*—*a* (3).
2. The foremost of the three at the base—*β* (3).
3. The middle-one of them—*δ* (4).
4. The hindmost of the three—*γ* (3).

Four stars in all, whereof three (are) of the 3rd magnitude, one of the 4th.'

Note.

This little constellation supplies a very good illustration of the principles which obtained in the formation of the Signs. The school of O. Müller and the modern 'untutored anthropologist' would deal with its origin in the same futile manner with which Müller treats the constellation of the *Arrow*. They would say that someone noticed these stars, saw they resembled a triangle, called them the *Triangle*, and everyone else followed suit; a pretended explanation *which merely repeats the fact that such a constellation exists.* But, suppose we ask, As there are hundreds of stars which might have been combined in triangles, how comes it that these particular stars, which, moreover, form a perfect isosceles triangle, were selected? To this Ignorance would answer that the stars *chanced* to be selected, and that the circumstance that the figure is an isosceles triangle was also accidental and devoid of any significance. But, rejecting this vain repetition of the facts of the case, in the first place we observe that Aratos says:—

> 'Another Sign is formed, too, near at hand
> Below *Andromeda,* in three sides measured
> *Like-to-a-Delta;* equal two of them
> As it has, less the third, yet good to find
> The Sign, than many better stored with stars'
> (*H. D.* 233-7).

Not without careful design has this *Triangle* been placed with the family group of Phoenician divinities. It is an exact celestial reproduction of the sacred pyramidal monoliths, specimens of which still exist in Kypros, and which appear on her coinage (Vide Perrot, *Hist. of Art in Ph.* i. 280-1); and it further serves as a symbol of the sacred form of the Tripod. In all regions within the sphere of Phoenician influence the sacred Stone (Vide *sup.* p. 30) occupies a most prominent place, and actually represents both god and goddess. Thus, Tacitus describes the statue of Aphrodîtê of Pappa (Paphos),—'Simulacrum deae, non effigie humana, continuus orbis latiore initio tenuam inambitum, metae modo, exsurgens' (*Hist.* ii. 3). Maximus Tyrius records, 'The Paphians worship Aphrodîtê, whose statue is like a white pyramid' (*Dissert.* xxxviii.; cf. Servius, in *Aen.* i. 720; Philostratos, *Ta es ton Tyanea Apollôn.* iii. 58; R. B. Jr., *G. D. M.* i. 350 *et seq.*). And this pyramidal stone and pillar cult was early introduced by the Phoenicians into European continental Hellas. Thus, near Sikyôn was 'an altar of Poseidôn of the Isthmus, and statues of Zeus Meilichios [Melekh-Melqârth] and Artemis called Patrôa [the 'Tutelary'], wrought with no skill,' *i.e.*, rude and archaic. 'Meilichios is like a pyramid, and she is formed in the shape of a pillar' (Paus. II. ix. 6).

The very name Tsûr (Tyre) or 'Rock' is a divine appellation alike in Syria and in Israel (Vide Hommel, *Anc. Heb. Trad.* p. 319 *et seq.*). The pyramidal Triangle is thus symbolical and connected with the cult of *Kêpheus*, *Kassiepeia*, *Perseus*, *and Andromeda*.

'And the stars of the Northern Region are altogether 360, whereof three (are) of the 1st magnitude, eighteen of the 2nd, eighty-one of the 3rd, one hundred and seventy-seven of the 4th, fifty-eight of the 5th, thirteen of the 6th, nine dim, one nebulous.'

'*The Star-list of the Northern Figures in the Zodiac.*

I.—THE CONSTELLATION OF THE *Ram*.

1. The foremost of the two at the horn—γ (3).
2. The hindmost of them—β (3).
3. The more-northerly of the two at the muzzle—η (5).
4. The more-southerly of them—θ (5).
5. The one at the neck—ι (5).
6. The one at the loins—ν (6).
7. The one at the outgrowth of the tail—ϵ (5).
8. The foremost of the three in the tail—δ (4).
9. The middle-one of the three—ζ (4).
10. The hindmost of them—τ^2 (4).
11. The one in the back of the thigh—ρ^1 (5).
12. The one under the bend (of the hind leg)—σ (5).
13. The one at the end of the hind foot—87 *Ceti* (4).

Thirteen stars in all, whereof two (are) of the 3rd magnitude, four of the 4th, six of the 5th, one of the 6th.

The Unformed-stars around him.

1. The one over the head, which Hipparchos (places) at the muzzle—α (3).
2. The hindmost and brightest of the four above the loins—41 (4).
3. The more-northerly of the three remaining and dimmer-ones —39 (5).
4. The middle-one of the three—35 (5).
5. The more-southerly of them—33 (5).

Five stars in all, whereof one (is) of the 3rd magnitude, one of the 4th, three of the 5th.'

Note.

This constellation affords a perfect illustration of the Law of Reduplication, in accordance with which the symbolism connected with very obvious natural phenomena reappears in a subsequent application to phenomena less immediately noticeable. The comparison of the sun to a ram or bull is a line of thought which naturally and spontaneously arises in the mind of archaic man; and even a modern writer can use quite similar language, and tell how the sun 'thrusts forth his golden horns' (Jeremy Taylor, *Holy Dying*, p. 17); and in so doing, butts triumphantly against the darkness which he thus puts to flight. Similarly, in *W. A. I.* IV. xxvii. 21, we have the comparison, 'Its horns shine like the splendour of the Sun-god.' In the Euphrates Valley the sun was styled a *Lubat* ('Old-sheep'), and ultimately the seven planets were called *kakkabâni Lubati* ('Old-sheep-stars'), and, as observation of the sun must necessarily have long preceded any classification of planets, this symbolic view of the sun, as an old-sheep or Ram, is necessarily of a remote antiquity. Thus, again, in ancient Egypt the Ram-sun is,

> 'The brilliant One who shines in the waters of the inundation;
> He who enters and comes forth continually from his highly
> mysterious cavern [the Under-world],
> He who raised his head and lifts his forehead;
> The Ram, the greatest of the creatures'
> (*Litany of Râ*, i. 26, ap. Naville).

The Ram-headed sun-god is frequently portrayed upon the monuments. Similarly, in India the solar Indra is styled 'the Ram irradiating the firmament' (*Rig-veda*, I. li. 1, 2); so that the idea is neither specially Akkadian, Egyptian or Aryan, but one which arises naturally in the mind of man. The solar Ram, who opened the day, was in time reduplicated by the stellar Ram, who onwards from B.C. 2540, opened the year; and led the starry flock through it as their bell-weather. And this stellar Ram was, in the first place, only the star *Hamal* ('the Ram,' *a Arietis*), the nucleus of the constellation, called in Ak. *Si-mul* (*W. A. I.* II. vi. 9), 'Horn-star,' = As. *Ailuv* ('Ram'), Heb. *Ayîl*, Bab.-Gk. *Alôros*, the first of the ten antediluvian kings who represented, amongst other things, ten of the principal stars in the ecliptic, the alleged lengths of their reigns corresponding with the distances between these stars. Around *Hamal* was formed the *kakkab Anuv kakkab Lulim* (*W. A. I.* III. liii. No. 1, Rev. l. 30, 'The constellation of Anu, *i.e.*, the constellation of the *Ram*'), As. *Lulimu*, a loan-word. The sphere or region of the god Ana-Anu extended over the third of the Zodiac from the *Ram* to the *Crab*, both inclusive. In Gk. mythic legend the *Ram*, 'pecudem Athamantidos' (Ovid, *Fasti*, iv. 903), was connected with the Semitic house of Athamas-Tammuz (Vide *Katas.* sec. xix.). It has always been styled a 'diurnal' Sign, the true reason for this being the fact that it originally represented a diurnal phenomenon, *i.e.*, the sun. In *W. A. I.* V. xlvi. No. 1, l. 49 the *Ram* is defined as 'the uppermost part of the constellation of the *Scimitar* (Ak. *Gam*), which was a Moon-station (For further reference to *Aries*, vide R. B. Jr., *L. K. O.* sec. x.; *Z.* sec. i.; *C. E. A.* sec. ii.; *H. D.* 29, 70). The Euphratean astronomical abbreviation of the Sign is (Ak.) *Ku*, for *Ku-ê* = As. *Âgaru* ('the Messenger,' bringing the New Year), and also for As. *Ku-sarikku*, any strong horned animal.

II.—'The Constellation of the *Bull*.

1. The northern-one of the four at the severance—5 (4).
2. The one next it—4 (4).
3. The one besides next this—ξ (4).
4. The most-southerly of the four—o (4).
5. The one behind these at the right shoulder-blade—30 (5).
6. The one in the chest—λ (3).
7. The one at the right knee—μ (4).
8. The one at the right ankle—ν (4).
9. The one at the left knee—90 (4).
10. The one at the left leg—88 (4).
11. Of those in the face called the *Rainy-ones* (Hyades), the one at the nostrils—γ (3).
12. The one between this and the northern eye—δ^1 (3).
13. The one between it and the southern eye—θ^1 (3).
14. The bright-one of the *Rainy-ones* at the southern eye, reddish-yellow—α (1).
15. The remaining-one and (the one) at the northern eye—ϵ (3).
16. The one at the outgrowth of the southern horn and of the ear—97 (4).
17. The more-southerly of the two at the southern horn—104 (5).
18. The more-northerly of them—106 (5).
19. The one at the tip of the southern horn—ζ (3).
20. The one at the outgrowth of the northern horn—τ (4).
21. The one at the tip of the northern horn, the same (which) is in the right foot of the *Charioteer*—β (3).
22. The more-northerly of the two which are near together in the northern ear—υ^1 (5).
23. The more-southerly of them—κ^1 (5).
24. The foremost of the two small ones in the neck—37 (5).
25. The one behind it—ω ? (6).
26. The more-southerly-one on the foremost side of the quadrilateral in the neck—44 (5).
27. The more-northerly-one on the foremost side—ψ (5).
28. The more-southerly-one on the hindmost side—χ (5).
29. The more-northerly-one on the hindmost side—ϕ (5).
30. The northern end of the foremost side of the *Cluster* (Pleiad)—19 (5).
31. The southern end of the foremost side—23 (5).
32. The hindmost and narrowest side of the *Cluster*—27 (5).
33. The sixth and small-one of the *Cluster* northwards—18 (4).

Thirty-three stars in all, whereof one is of the 1st magnitude, six of the 3rd, eleven of the 4th, thirteen of the 5th, one of the 6th.

The Unformed-stars around the Bull.

1. The one below the right foot and the shoulder-blade—10 (4).
2. The foremost of the three above the southern horn—ι (5).
3. The middle one of the three—105 (5).
4. The hindmost of them—114 (5).
5. The more-northerly of the two below the tip of the southern horn—126 (5).
6. The more-southerly of them—128 (5).
7. The foremost of the five following below the northern horn—121 (5).
8. The one following this one—125 (5).
9. The one following next to this—132 (5).
10. The more-northerly of the two remaining and following ones—136 (5).
11. The more-southerly of them—139 (5).

Eleven stars in all, whereof one (is) of the 4th magnitude, ten of the 5th.'

Note.

The primary name of the Euphratean Moon-god appears to have been Nannar, written *Na-an-nar* and probably representing an original Na-nar (' Strong-prince '). In Euhemeristic legend he becomes a Persian satrap Nannaros (Vide Sayce, *Rel. Anct. Babs.* p. 157). He is styled ' the strong Bull, whose horn is powerful ' (*W. A. I.* IV. ix. 10, ap. Sayce) ; and the connexion in idea between the moon and the bull, ox, or cow, is so obvious as to be inevitable. In the Hittite characters (*Hamath Ins.* No. V.) the Bull's head is actually combined with the crescent (Vide R. B. Jr., *C. E. A.* Fig. vi., p. 11). The lunar Bull is reduplicated in the zodiacal *Taurus*, hence called a ' nocturnal ' Sign and connected with the second of the ten antediluvian kings, Alaparos (=Ak. *alap*, bull, + *ur*, ' foundation '), ' the Bull-of-the-Foundation,' originally, *i.e.*, between B.C. 4698 and 2540, the first of the zodiacal Signs, in the age when 'Candidus auratis aperit cum cornibus annum Taurus' (Vergil, *Geor.* i. 217-8). Alaparos is equated with *Alcyonê* (*η Tauri*). The Euphratean astronomical abbreviation of the Sign is *Te* or *Te-te*, the highly abraded form of the Ak. *dimmena* ('foundation-stone') = As. *timmena-timmen-timme-tim-tem-te* ('foundation'). The 'Foundation'-star (*Temennu*) is the Pleiad, or particularly *Alcyonê*. The two 'Foundations' (*Te-te*) are the Pleiads and Hyads. The *Kakkab* (Ak.) *Gut-anna*, (As.) *Alpu-same* ('Bull-of-heaven') = (originally) the Hyads, and is spoken of as belonging to the 'Field of Anu,' and as being in 'the path of the sun' (*kharran samsi*, *W. A. I.*, III. liii. No. 1, Rev. 15). It is specially connected with the second month Airu-Iyyar (*Tab.* No. 85-4-30, 15, l. 2). In *W. A. I.* II. xlix. 45 *Gut-anna* is described as *Rimu* (Heb. *Rêm*) *issu* ('the strong Wild-bull'), also called in Ak. *Am-si* ('Horned bull,' *i.e.*, the Bull with huge horns), the *κεραὸν* Ταῦρον of Aratos (*Phainom.* 167), the Urus (*Bos primigenius*), the 'Unicorn' of the A. V. of the Bible. The huge horns, hump, etc., are faithfully preserved in the stellar *Bull* above described (For further reference to *Taurus*, vide R. B. Jr., *L. K. O.* sec. xi.; *Z.* sec. ii.; *C. E. A.* sec. iii.; *U.* secs. ix., x.). The third of the ten antediluvian kings, Amillaros (= Ak. *mulu*, As. *A-mil*, 'man,' + *ur*, 'foundation'), 'Man-of-the-foundation,' is equated with *Aldebaran* (*α Tauri*).

III.—'THE CONSTELLATION OF THE *Twins*.

1. The one at the head of the foremost *Twin*—*α* (2).
2. The one at the head of the hindmost *Twin*, reddish-yellow —*β* (2).
3. The one in the left forearm of the foremost *Twin*—*θ* (4).
4. The one in the same arm—*τ* (4).

5. The one following it and over the-broad-of-the-back—ι (4).
6. The one following this at the right shoulder of the same *Twin*—υ (4).
7. The one at the hindmost shoulder of the hindmost *Twin*—κ (4).
8. The one at the right side of the foremost *Twin*—57 (5).
9. The one at the left side of the hindmost *Twin*—76 (5).
10. The one at the left knee of the foremost *Twin*—ϵ (3).
11. The one at the right knee of the hindmost *Twin*—ζ (3).
12. The one in the left groin of the hindmost *Twin*—δ (3).
13. The one over the bent right arm of the same *Twin*—λ (3).
14. The one at the projecting foot of the foremost *Twin*—η (4).
15. The one following this at the same foot—μ (4).
16. The one at the end of the right foot of the foremost *Twin*—ν (4).
17. The one at the end of the left foot of the hindmost *Twin*—γ (3).
18. The one at the end of the right foot of the hindmost *Twin*—ξ (4).

Eighteen stars in all, whereof two (are) of the 2nd magnitude, five of the 3rd, nine of the 4th, two of the 5th.

The Unformed-stars around them.

1. The foremost at the projecting foot of the foremost *Twin*—ι (4).
2. The bright-one before the foremost knee—κ *Aurigae* (4).
3. The one before the left knee of the hindmost *Twin*—36 (5).
4. Of those following the right arm of the hindmost *Twin*, the midddle-one of the three—85 (5).
5. The southern-one in a straight line—81 (5).
6. The southern-one and towards the bend of the arm—74 (5).
7. The bright-one following the three aforesaid—ζ *Cancri* (4).

Seven stars in all, whereof three (are) of the 4th magnitude, four of the 5th.'

Note.

The original Twins are the Sun and Moon, and, as they are only seen together by day, *Gemini* is a 'diurnal' Sign. The third month is called in Ak. *Mun-ga* ('the Making-of-Bricks') and *Kas* ('the Twins'); and the archaic kosmogonic myth or legend attached to it is that of the Two Hostile Brethren and the Building of the First City. 'The Great Twin

Brethren' who join in building a mysterious city, and who are hostile to each other although they work together, are Sun and Moon, engaged in securing the preservation of kosmic order, and yet also constantly antagonistic, as the Lion and the Unicorn (Vide R. B. Jr., *U.*); or, again, when the myth becomes Euhemeristic history, the satraps Nannaros and Parsondas (Vide *sup.* p. 56). The natural basis of this 'mythic' opposition is that they constantly chase each other, and mutually expel each other from the crown of heaven, for which the Lion and Unicorn fight. Thus, on the cylinders the *Twins* are frequently represented feet to feet or head to head, one above the other, *i.e.*, when the Sun is up the Moon is down, and conversely; although this does not apply to the *Twin*-stars, *Kastor* and *Polydeukês*, the Hellenic Dioskouroi, 'fratres Helenae, lucida sidera' (Hor. *Ode* iii. 2), variants of the Vedic Asvinau, and whose names were naturally bestowed by the Greeks on the Euphratean constellation *Mastabbagalgal* ('the Great Twins'), in whom Sun and Moon are reduplicated. The Euphratean astronomical abbreviation of the Sign is *Mas* ('Twin') or *Mas-mas*; and *Pollux* (β *Gem.*) is equated with the fourth antediluvian king Ammemôn (= Ak. *umun*, 'offspring' + *an*, 'heaven'), 'Offspring-of-heaven,' *i.e.*, the Sun (For further reference to *Gemini*, Vide R. B. Jr., *K.* 135-8; *Z.* sec. iii.).

IV.—'THE CONSTELLATION OF THE *Crab*.

1. Of the nebulous collection in the breast, the midst of that called the *Manger*—ε (nebulous).
2. The more-northerly of the two foremost-ones of the quadrilateral around the *nebula*—η (4).
3. The more-southerly of the two foremost-ones—θ (4).

4. The northern of the two hindmost-ones of the quadrilateral, and of those called *Asses*—γ (4).
5. The southern-one of the two aforesaid—δ (4).
6. The one at the southern claw—α (4).
7. The one at the northern claw—ι (4).
8. The one behind the northern foot—μ^2 (5).
9. The one behind the southern foot—β (4).

Nine stars in all, whereof seven are of the 4th magnitude, one of the 5th, and one nebulous.

The Unformed-stars around it.

1. The one beyond the bend of the southern claw—π^1 (4).
2. The one after the end of the southern claw—κ (4).
3. The foremost of the two following beyond the *nebula*—ν (5).
4. The hindmost of them—ξ (5).

Four stars in all, whereof two (are) of the 4th magnitude, two of the 5th.'

Note.

Cancer, 'the Dark-constellation,' a 'nocturnal' Sign, is a variant of *Scorpio;* and in each case Darkness is represented, now as the death and now as the guardian of Light, under a somewhat repulsive form, as a seizing, stinging creature, variant reduplications of the drakontic and monstrous forms under which Darkness is personified. The Euphratean astronomical abbreviation of the Sign is *Nagar;* and in *Tab.* 81-7-6, 102 the *Crab* appears as the constellation of the fourth month under the name of *Nagar-asurra* ('the Workman-of-the-River-bed'). Nagar is probably a dialectic variant of Lamga (Vide Sayce, *Rel. Anct. Babs.* p. 186), a name of Sin, the Moon-god. *Cancer* is astrologically 'the House of the Moon,' between which and the *Crab* there is a singular mythical connexion (Vide Gubernatis, *Zoological Mythology*, ii. 354 *et seq.* For further reference to *Cancer*, vide R. B. Jr., *Z.* sec. iv. ; *inf.* p. 209).

V.—'THE CONSTELLATION OF THE *Lion.*

1. The one at the end of the nose—κ (4).

2. The one in the open mouth—λ (4).
3. The more-northerly of the two in the head—μ (3).
4. The more-southerly of them—ε (3).
5. The northern-one of the three in the neck—ζ (3).
6. The one coming next and the middle-one of the three—γ (2).
7. The southern-one of them—η (3).
8. The one at the heart called the *Little King*—α (1).
9. The one more-south than it, and as at the chest—31 (4).
10. The one a little before that at the heart—ν (5).
11. The one at the right knee—ψ (5).
12. The one at the fore part of the right paw—ξ (6).
13. The one at the fore part of the left paw—ο (4).
14. The one at the left knee—π (4).
15. The one at the pit of the left fore-paw—ρ (4).
16. The foremost of the three in the belly—46 (6).
17. The northern of the two remaining and hindmost-ones—52 (6).
18. The more-southerly of them—53 (6).
19. The foremost of the two at the loins—60 (6).
20. The hindmost of them—δ (2).
21. The more-northerly of the two in the rump—71 (5).
22. The more-southerly of them—θ (3).
23. The one at the back of the thigh—ι (3).
24. The one in the bend of the hind legs—σ (4).
25. The one more-south than this, as if in the shank—τ (4).
26. The one at the hind paws—υ (5).
27. The one at the end of the tail—β (1).

Twenty-seven stars in all, whereof two (are) of the 1st magnitude, two of the 2nd, six of the 3rd, eight of the 4th, five of the 5th, four of the 6th.

The Unformed-stars around him.

1. The foremost of the two beyond the back—40 *Leo. Min.* (5).
2. The hindmost of them—54 (5).
3. The northern-one of the three under the flank—χ (4).
4. The middle-one of them—59 (5).
5. The southern-one of them—58 (5).
6. The northern-part of the nebulous group between the highest parts of the *Lion* and the *Bear*, called the *Tress* (dim).
7. The foremost of the southern projections of the *Tress*—4 *Com. Ber.* (dim).
8. The part behind them in the shape of an ivy-leaf—21 etc. *Com. Ber.* (dim).

Five stars in all, whereof one (is) of the 4th magnitude, four of the 5th, and the *Tress.*'

Note.

Leo, a 'diurnal' Sign, is a reduplication of the leonine Sun-god (Vide R. B. Jr., *E.* Appendix III. The Sun-god and the Lion.), the opponent of the Unicorn-moon. It is called in Ak. *Ur-gula* ('the Big-dog,' *i.e.*, Lion), As. *Arû rabu*, the constellation of the fifth month (Vide *Tab.* 85-4-30, 15); and the Euphratean astronomical abbreviation of the Sign is *A* for *A*-rû, Heb. *Aryiah*. In *W. A. I.* III. lix. No. 13, l. 3 we read:—'The constellation of the *Lion* (*Ur-gula*) is obscured,' and in l. 5 'The star of the *King* (is) obscured.' This latter, one of the '12 stars of the West' (*Ib.* II. xlix. No. 1, l. 5) is the Ak. *Lu-gal*, As. *Sarru*, Gk. Βασιλίσκος, Lat. *Regulus* (*a Leonis*). Ὁ Λέων ἔχει ἐπὶ τῆς καρδίας ʼαστέρα Βασιλίσκον λεγόμενον, ὅν ὁι Χαλδαῖοι νομίζουσιν ἄρκειν τῶν οὐρανίων (Schol. Arat. *Phainom.* 148). This star affords a very good illustration of the remarkable fact that the main features of Classical, and, as of course, of modern astronomical nomenclature, have descended to us unchanged from the Sumero-Akkadai of a remote period. The connexion between the Sun, king of the heavenly host, and the Lion, king of animals, is almost as obvious and inevitable as that between the Moon and the Bull (Vide Gubernatis, *Zoological Mythology*, ii. 154 *et seq.*). Macrobius expresses the general idea when he says, 'This beast seems to derive his own nature from that luminary [the sun], being in force and heat as superior to all other animals as the sun is to the stars. The lion is always seen with his eyes wide open and full of fire, so doth the sun look upon the earth with open and fiery eye' (*Sat.* i. 21). The following is a very interesting instance of the solar lion:—'Mr. Ruskin exhibited a handsomely illuminated leaf from the Bible of Charles the Bald, grandson to Charlemagne, which bore in the centre a *yellow* lion . . . The motto on the Bible leaf was "This lion rises, and by his rising breaks the gates of hell [Hadês]; this lion never sleeps, nor shall sleep for evermore"' (*Standard*, Nov. 3, 1884). So Hêraklês, clad in his lion-skin, overcomes Aïdôneus at the 'Gate' (ἐν Πύλῳ, *Il.* v. 397) of the Under-world. *Regulus* is equated with the fifth antediluvian king, Amegalaros (= Ak. *Mulu*, As. *Amil*, 'Man,' + *gal*, 'great,'='king,' + *ur*, 'celestial sphere'), 'King-of-the-celestial-sphere' (Vide the above quotation from the Schol. on Aratos. For further reference to *Leo*, vide R. B. Jr., *L. K. O.* sec. xiv.; *Z.* sec. v.).

VI.—'THE CONSTELLATION OF THE *Virgin*.

1. The southern-one of the two at the top of the head—ν (5).
2. The more-northerly of them—ξ (5).
3. The more-northerly of the two behind these in the face—o (5).
4. The more-southerly of them—π (5).
5. The one at the top of the southern and left wing—β (3).
6. The foremost of the four in the left wing—η (3).
7. The one next to this—γ (3).
8. The one besides next to this—44? (5).
9. The last and hindmost of the four—θ (4).
10. The one in the right side under the girdle—δ (3).
11. The foremost of the three in the right and northern wing—ρ (5).
12. The southern of the two remaining-ones—33? (6).
13. The northern-one of them and (the one) called *Vintage-herald*—ϵ (5. Qy. 3?).
14. The one at the end of the left hand called *Ear-of-corn*—α (1).
15. The one below the girdle, as if towards the right buttock—ζ (3).

16. The northern-one of the foremost side of the quadrilateral in the left side—74 (5).
17. The southern-one of the foremost side—76 (6).
18. The more-northerly of the two in the hindmost side—82 (4).
19. The more-southerly-one on the hindmost side—? (5).
20. The one at the left knee—86 (5).
21. The one at the back of the right thigh—90 ? (5).
22. The middle-one of the three in the robe at the feet—ι (4).
23. The southern-one of them—κ (4).
24. The northern-one of the three—ϕ (4).
25. The one at the end of the left and southern foot—λ (4).
26. The one at the end of the right and northern foot—μ (3).

Twenty-six stars in all, whereof one (is) of the first magnitude, six of the 3rd, six of the 4th, eleven of the 5th, two of the 6th.

The Unformed-stars around her.

1. The foremost of the three in a straight line below the left arm—χ (5).
2. The middle-one of them—ψ (5).
3. The hindmost of the three—49 (5).
4. The foremost of the three in a straight line below the *Ear-of-corn*—53 (6).
5. The middle-one of them also a double (star)—61 (5).
6. The hindmost of the three—73 ? (6).

Six stars in all, whereof four (are) of the 5th magnitude, two of the 6th.

And together [*i.e.*, the stars of 'the Northern Region' + the Northern Zodiacal stars] these (are) all the stars of the Northern Hemisphere.'

Note.

The Sumero-Akkadian goddess Istar ('Heaven-daughter'), Sem. Ashtoreth, Gk. Astartê, originally represented the Moon in its female phase (Luna, vide Sayce, *Bab. Lit.* pp. 35, 37), Ashtoreth Qarnâîm ('the Twy-horned Astartê,' *Gen.* xiv. 5); but Istar was subsequently identified with the planet *Venus*, and her stellar constellational reduplication is the 'nocturnal' Sign *Virgo* (Sayce, *Trans.* Soc. Bib. Archaeol. iii. 163), the Sign of the sixth month, called *Ki Gingirna* ('the Errand-of-Istar'). She is naturally the presiding divinity of the month, and her 'errand' is to seek her lost bridegroom Duwuzi-Tammaz in the Under-world, as described in the now familiar legend of *The Descent of Istar*. The sixth Tablet of the great solar epic of Gilgames is mainly occupied with an account of the doings of Istar, who, as I have shown elsewhere (Vide R. B. Jr., *K.*), reappears in Greek mythology as Kirkê. The planetary Istar is double-phased as (1) the Morning-star, goddess of War, and (2) the Evening-star, goddess of Love. The star *Vintage-herald* (Gk. *Protrygêtêr*, Lat. *Vindemiatrix*, *Vindemitor*) is named in a doubtful line (138) in Arat. *Phainom.*; and from its being connected in time with the vintage, appears to have attracted more attention than its mere brightness seems to warrant. At present it is a smaller 3rd magnitude star, but the reading in the List which gives it as of the 5th magnitude must surely be erroneous. Of course the brightness of many stars varies in different ages, and yet, after making allowance for this, it is often difficult to understand the magnitudes given in the List. The Euphratean astronomical abbreviation of the Sign is *Ki* (Vide *sup.*). The Great Goddess of Western Asia was both virgin and mother, hence the *Parthenos-Virgo* element. In Tablets of the third century B.C. (Vide R. B. Jr., in the *Academy*, Nov. 10, 1894, p. 379), *a Virginis* (Gk. *Stachys*, Lat. *Spica*) is called *Nibittu sa ziri* ('The one called *Ear-of-corn*,' Heb. *zera*, 'grain,' 'seed'); and in Tablet *K.* 12,126 we meet with the (Ak.) *Mul Khi-se*, (As.) *Kakkab Esiru-ziri* ('Propitious-one-of-seed') which may perhaps = *Spica*. The *Ear-of-corn* appears on the monuments (Vide R. B. Jr., *C. E. A.* Fig. vii. p. 11).

Stachys also = Lat. *Pubes*, and the symbol has further references in connexion with the Love-goddess (Vide R. B. Jr., *U.*). *Spica* is equated with the sixth antediluvian king, Daônos, also called Daôs; and both these names reappear in the seventeenth Lunar Asterism *Kakkab Dannu, ilu Damu* (*W. A. I.* V. xlvi. No. 1, l. 19), 'the Star of the Hero, *i.e.*, the god of the Sky-furrow.' This original hero of the sky-furrow would be the Moon. *Damu*, *Davu*, = Gk. Δαώς.

'*The Star-list of the Southern Figures in the Zodiac.*

VII.—The Constellation of the *Claws*.

1. The bright-one of those at the end of the southern *Claw*—α (2).
2. The one more-northerly than it and dimmer—μ (5).
3. The bright-one of those at the end of the northern *Claw*—β (2).
4. The one in front of it and dim—δ (5).
5. The one in the middle of the southern *Claw*—ι^1 (4).
6. The one in front of this on the same *Claw*—ν^1 (4).
7. The one in the middle of the northern *Claw*—γ (4).
8. The one behind it on the same *Claw*—θ (4).

Eight stars in all, whereof two (are) of the 2nd magnitude, four of the 4th, two of the 5th.

The Unformed-stars around the Claws.

1. The foremost of the three more-northerly than the northern *Claw*—37 (5).
2. The southern-one of the two hindmost—48 (4).
3. The northern-one of them—ξ *Scorpionis?* (4).
4. The hindmost of the three between the *Claws*—λ (6).
5. The northern of the two remaining and preceding-ones—41 (5).
6. The southern-one of them—κ (4).
7. The foremost of the three more-southerly than the southern *Claw*—20 (3).
8. The more-northerly of the two remaining and hindmost-ones—39 (4).
9. The more-southerly of them—40 (4).

Nine stars in all, whereof one (is) of the 3rd magnitude, five of the 4th, two of the 5th, one of the 6th.'

Note.

The *Scorpion*, as noticed (*Sup.* p. 60), was, like the *Crab*, originally a symbol of Darkness, and, when the law of kosmic harmony has been recognized, the sun-slaying Scorpion is equally the sun-guarding Scorpion. Thus, the wandering hero Gilgames meets with gigantic solar guardians of this type,

> 'Who daily guard the rising (sun).
> Their crown was at the lattice of heaven,
> Below Hadês was their footing.
> Scorpion-men guard its gate,
> Burning with terribleness, and their appearance was death,
> The greatness of their bulk overthrows the forests.
> At the rising of the sun and the setting of the sun, they guard the sun'
> (*Gilgames Cycle*, *Tablet* ix. 3-9, ap. Sayce).

This Scorpion-pair, representing Darkness eastern and western, is shown one on each side of an Altar-censer (= the Constellation the *Altar*, reduplicated in the Southern *Altar*, vide *inf.* p. 112), guarding it (Vide R. B. Jr., *C. E. A.* Fig. xxi. p. 27). As the huge size of Ôrîôn, *i.e.*, that of the sun as compared with the stars, is always insisted on, so the Scorpions of darkness are of colossal size, infinitely greater than the Ôrîôn-sun. And this phase is faithfully reproduced in Aratos :—

> 'Great *Ôrîôn*, too, his advent [*i.e.*, that of the *Scorpion*] fears.
> Content thee Artemis [= Luna.] ! A tale of old
> Tells how the strong Ôrîôn [= Sol] seized thy robe.
> But she forthwith another monster bade—
> The Scorpion [= Darkness] . . . this, huger still,
> His greatness slew since Artemis he chafed.
> And, so, 'tis said that, when the *Scorpion* comes,
> *Ôrîôn* flies to utmost end of earth' (*Phainom.* 636-41).

Thus, the original strife between the Ôrîôn-sun and the Scorpion-darkness is astronomically reduplicated in a putting to flight of the stars of *Ôrîôn* by the constellational *Scorpion*. And this gigantic size of the Scorpion is also reduplicated in the Zodiac, where it occupied two Signs; and thus gave rise to the mistake of Servius (In *Georgica*, i. 33) that the Chaldean Zodiac consisted of only eleven constellations. It is interesting to notice that in *The Egyptian Book of the Dead*, cap. lxxxvi. (ap. Renouf), the 'Scorpion-bird' is styled 'the daughter [*i.e.*, mythologically speaking, the 'successor'] of Râ' ('the Sun'). So Tennyson, 'Darkness rises from the fallen sun.'

This daily seizing of the dying western Sun by the claws of the Scorpion of darkness is reduplicated annually at the autumnal equinox, when the feeble waning Sun of shortening days falls ever earlier into his enemy's grasp. Agreeably with this we find that Samas, the Sun-god, is the presiding divinity of the seventh month (Sept.-Oct.), called in Ak. *Tul-ku* ('the Holy Altar'); and that the solar Gilgames 'sickens in the autumnal month of [September] October, and not until he [like Ôrîôn] has bathed in the waters of the eastern ocean does he once more recover strength and brilliance with the beginning of the new year' (Sayce, *Bab. Lit.* p. 27). The Euphratean astronomical abbreviation for the Sign of the month is *Bir*, 'die alte Form für ud = nûru' (Licht. Strassmaier, *Astronomisches aus Babylon*, p. 171); and we find on the monuments, amongst other constellation-figures, a Lamp, below which, a Scorpion, with large claws, almost touching it (Vide R. B. Jr., *H. D.* Fig. lxvii. p. 84). We further find on a Euphratean gem (Vide R. B. Jr., *C. E. A.* Fig. xvi. p. 23) a Scorpion holding a circular object in its claws. The stars in the *Claws* form a dim circle, representative of the waning Sun (Vide R. B. Jr., *Z.* Fig. xii. p. 16); and the constellation *Ara*, to which much mythic idea primarily connected with the original zodiacal *Altar* has become attached, was represented as circular (Vide Arat. *Phainom.* 440). With this seventh month of Tasritu-Tisri was also connected the building of the famous Tower of Babel, said to have 'been the special work of Sar-tuli-elli ('the King-of-the-Holy-mound'), and its erection was placed in the month Tisri at the autumnal equinox' (Sayce, *Bab. Lit.* p. 32; vide *Rel. Anct. Babs.* pp. 406-7). It was a *Zikkurâtu*, with seven steps, a circumstance connected with planetary symbolism; and this style of building is reduplicated in the oldest Egyptian pyramids, *e.g.*, the pyramid of Saqqâra, which had 'seven steps like the Babylonian towers' (Birch, *Egypt from the Earliest Times*, p. 25), a statement which I verified by careful examination on the spot. The circumstance, one amongst many such, supplies a most interesting illustration of the fact that the Egyptian civilization was mainly Euphratean in origin. But, in immediate connexion with our present subject, it is to be remembered that whatever else these temple-towers may have been or represented, they were also altars, when

> 'in the misty morning of the world
> Rose Babylôn in towers; and every tower
> An altar flaming to the answering stars!'
> (R. B. Jr., *Tellis and Kleoleia*, 1657-9).

This, or a similar, Zikkurat is shown, amongst other figures of the Host of Heaven, upon the Stone of Merôdach Balâdan I.; and *Tab.* 81-7-6, 102 gives the asterism *Entenamasluv* ('the Lord-of-the-Foundation, the Hero-of-the-Brickword'), which, as the twenty-second Lunar Mansion = 20 *Librae* and the stars adjoining (Vide R. B. Jr., *E. S. R.*, Part V., p. 31), as specially connected with the month *Tisri*. From the foregoing considerations it clearly appears that the original Sign of the seventh month, and which of course would be a 'diurnal' Sign, as the 'diurnal' and 'nocturnal' Signs alternate, was the Sun figured as a lamp, light, flame connected with an *Altar* = the *Flaming Altar*, held by the *Claws* of the *Scorpion*. Agreeably with this we find in *Tab. K.* 12,340 mention made of the *Kakkab Ni-du-ub* or *I-dub* ('the Lofty-altar'), in connexion with several constellations of that quarter of the heavens, amongst which are *Girtab* ('the *Scorpion*') and *Zibânîtuv* ('the *Claws*'), which latter, as noticed by Prof. Hommel and others = the Arab *Azzubânay* ('the Two-claws' = *a*, *β Librae*). Of these *a Librae* is *Zuben-el-genu-bi* ('the Southern-claw') and *β Librae* *Zuben-el-chemali* ('the Northern-claw'). Thus, in *Tab. K.* 2894, Ob. l. 7, we read:—*Lubat ina libbi kakkabi Zibânîti izzaz* ('The Planet [lit. 'Old-sheep,' *i.e.*, *Jupiter*] in the midst of the constellation of the *Claws* is fixed'). The expression *Kakkab Tsalmu Zibânîtuv* (*W. A. I.* II. lvii. 49, 'The dark constellation of the *Claws*') is exactly paralleled by the statement of Aratos, that 'the huge *Claws* [which must have been out of proportion with respect to the *Scorpion* as a whole,] are scant of light and nothing fair' (*Phainom.* 89-90). In *W. A. I.* III. lvii. No. 6, l. 60, we find the (Ak.) *Mi Zi-ba-an-na* ('Dark Life-maker-of-heaven') the seventh and last of the seven pairs of *Mâsu* ('Twin'-stars). The *Altar*, however, dropped out of the representation, and evidently at a somewhat early period. Certainly when the use of the Sign had first reached the shores of the Aigaion the *Claws* alone remained (For further reference to the *Chêlai*, vide R. B. Jr., *L. K. O.* sec. xvi.; *Z.* sec. vii.; *C. E. A.* sec. viii.). The *Balance* or *Scales* (*Libra*), which it will be observed is in itself neither diurnal nor nocturnal, is the only one of the zodiacal Signs not Euphratean in origin, having been imported from Egypt, and representing originally the balance of the sun at the horizon between the Upper and Under-worlds; and secondarily 'the equality of the days and nights at the equinoxes.' So Achilleus Tatios, cir. A.D. 475, in a *Fragment* on the *Phainomena*, speaks of τὰς Χηλὰς, τὰς καλουμένας ʽυπ᾽ ᾽Αιγυπτίων Ζυγὸν (Ap. Petavius, *Uranologion*, p. 168) = *Jugum*, the beam of the balance.

VIII.—' The Constellation of the *Scorpion.*

1. The northern of the three bright-ones in the face—β (3).
2. The middle-one of them—δ (3).
3. The more-southerly of the three—π (3).
4. The one still more-southerly than this on one of the feet—ρ (3).
5. The northern of the two lying-beside-each-other by the most-northerly of the bright-ones—ν (4).
6. The southern-one of them—ω^1 (4).
7. The foremost of the three bright-ones in the body—σ (3).
8. The middle-one of them also reddish-yellow, called *Equal-to-Arês*—α (2).
9. The hindmost of the three—τ (3).
10. The foremost of the two below them, as if over the last foot—13 (5).
11. The hindmost of them—' Piazzi xvi. 31 ' (5).
12. The one in the first joint from the body—ε (3).
13. The one after this in the second joint—μ (3).
14. The northern-one of the double-star in the third joint—ζ^1 (4).
15. The more-southerly-one of the double-star—ζ^2 (4).
16. The one after this in the fourth joint—η (3).

17. The one after this in the fifth joint—θ (3).
18. The one still after this in the sixth joint—ι (3).
19. The one in the seventh joint, the one next the sting—κ (3).
20. The hindmost of the two in the sting—λ (3).
21. The foremost of them—υ (4).

Twenty-one stars in all, whereof one (is) of the 2nd magnitude, thirteen of the 3rd, five of the 4th, two of the 5th.

The Unformed-stars around it.

1. The one after the sting, nebulous—(nebulous).
2. The foremost of the two north of the sting—45 *Serpentarii* (5).
3. The hindmost of them—3 *Sagittarii?* (5).

Three stars in all, whereof two (are) of the 5th magnitude, one nebulous.'

Note.

Few asterisms and constellations are more prominent and important in the Euphratean scheme than *Girtab* (lit. 'Seizer-and-stinger'), 'the *Scorpion*.' It originally appears as the twenty-seventh Mansion in the lunar Zodiac (Vide *W. A. I.* V. xlvi. No. 1, l. 31), there consisting of the stars θ, ι, κ, λ, υ *Scorpionis*; for it is always to be remembered that the lunar Zodiac was quite distinct from the solar Zodiac, by which it was to a great extent early superseded. The name *Girtab*, adopted by the framers of the solar Zodiac, was then applied to the present constellation *Scorpio*, which was also at times called *Gir-anna* ('Scorpion-of-heaven,' *Tab. K.* 4195). The Euphratean astronomical abbreviation is *Gir.* We possess three Fragments of the archaic Euphratean planisphere (*Tablets Sm.* 162; 81-7-27, 94; and 83-1-18, 608), from which I have been able to reconstruct it; and it is somewhat singular that *Girtab* appears on all three. The recorded observations of the constellation are very numerous. Thus we read,—*Kakkab Zalbat-anu ana kakkab Girtab dikhu* (*W. A. I.* III. liii. No. 1, Ob. l. 21. 'The star

Star-of-Death [*i.e.*, *Mars*] the constellation of the *Scorpion* faces'). There is a particular connexion between the ill-omened planet *Mars*, the star of the Hadês-god Ner-gal ('the Great-hero'), and the ill-omened constellation *Scorpio*, which latter, as it was connected with Nerra or Ner ('the Strong-one.' Prof. Sayce regards Nerra as 'the personification of death,' *Rel. Anct. Babs.* p. 195), so in Classical times it became one of the 'Houses' of Arês and of Mars in their planetary aspect. The 'red star' (Ak. *Simut*) *Mars*, amongst whose Euphratean names were *Khul* ('the Evil'), *Manma*, a word at times meaning 'Nobody,' and *Nu-mia* ('That-which-is-not'), 'referring to the fact that Mars recedes from the Earth until it is almost invisible' (Sayce, in *Trans.* Soc. Bib. Archaeol. iii. 171. Amongst the Sabaeans, *Mars* was considered to be 'the god of the blind,' Thos. Stanley, *Hist. of the Chaldaick Philosophy*, 1662, p. 87. Cf. Chwolsohn, *Die Ssabier*, ii. 24, etc.), has his reduplication and analogue in the red and unlucky star Αντάρης (*Cor Scorpionis*), 'the Equal-to-Arês,' called amongst the Turko-Tatars *Zejan-jolduz* ('Scorpion-star.' The Turko-Tatar *jol* = Ak. *Zal*, in *Zal-bat*, *sup.*). This star is named in 'central Asia and Persia *Kerwankush*, the gravedigger of caravans, because as long as the caravans observe its rising with Orion in the morning, robbers and death follow the stations' (Lacouperie, *Western Origin*, p. 289). And this circumstance exactly explains a curious remark concerning *Antarês* and *Ôrîôn* 'in the first printed edition of the *Almagest*, which is that published in Latin by Liechtenstein at Venice in 1515,' and which 'is derived from Arabic sources' (E. B. Knobel, *Note on the Descriptions of* *two Stars in Ptolemy's Catalogue*, in *Monthly Notices* of the Royal Astron. Soc., Vol. xlv. No. 3). The descriptions are as follows :—

> '8. *Scorpio.* Media earum quae *tendit ad rapinam* quae dicitur Cor Scorpionis.
>
> 2. *Orion.* Lucida quae est super humerum dextrum et ipsa *tendit ad rapinam.*'

This 'tendens ad rapinam' on the part of these two stars, a statement which puzzled Baily and others, thus receives its explanation in the dangers to which caravans were exposed from robbers. Thus at times an actual historical explanation is the key to a bit of stellar phraseology. But the complicated network of idea which Time weaves about stars and constellations will be not merely clear but also luminous if we keep in mind the simple natural-phenomena basis of the whole. Darkness is closely connected with winter, cold and death; the Scorpion of Darkness is therefore the Scorpion of autumn, when darkness, cold and death specially advance upon the world. Speaking of Tisri, the month of the *Claws*, Mr. Wm. Simpson observes, 'The ceremonies in almost every part of the world at that period of the year, as nearly everyone knows who has studied the subject, were connected with death' (*Trans.* Soc. Bib. Archaeol. ix. 327, note). And this phase of the Scorpion as the Death-dealer is exactly illustrated in the familiar Mithraic representation, where, in hundreds of instances, the creature seizes the *genitalia* of the dying Bull, the representative of the vigour and of the results of sun-and-earth-life, and slain by his master the Sun-god, as the latter hastens on his inevitable course throughout the year.

As we find the Euphratean *Scorpion*-star amongst the Turko-Tatars, so we naturally find it in the Persian scheme. The twentieth Persian lunar Mansion is *Vanant* (= *θ, ι, κ, λ, υ Scorpionis*), 'the Stinger' (Avestic *van*, 'to strike,' *-ant* pres. part. ending). 'The *Vanant Yasht* is a prayer addressed to the star *Vanant*, by which the Dasturs understand the Milky Way' (Haug, *Essays*, p. 217). The basis of this error, which illustrates the location of the asterism, is that the *Via Lactea* runs through *Scorpio* and the lunar *Girtab*. *Vanant* is one of the four chief asterisms in the Persian stellar scheme, an illustration of the original great importance of the *Scorpion*. Now we come to a most interesting piece of ritual, the meaning of which its votaries have lost for ages. 'When a sheep is slaughtered . . . the *testes* are for the star *Vanand*' (*Shâyast Lâ-Shâyast*, xi. 4, ap. E. W. West). Thus is the *Scorpion*-star *Vanant* linked and identified with the Scorpion which seizes the *testes* of the Mithraic Bull; and this creature appearing in a stellar aspect as the Euphratean *Gir-anna*, is itself a symbolical reduplication of Darkness, the monarch of winter, cold and death, alike in the earth, in the sepulchre, and in the Under-world; where Nergal, whose name was punned into Ne(r)-uru-gal ('the Strong-one-of-the-Great-City,' *i.e.*, Hadês. Vide Sayce, *Rel. Anct. Babs.* p. 195), reigned enthroned in awful majesty. As in the case of *Taurus*, the natural stellar configuration of the constellation, lent itself surprisingly to the expression of the symbol. *Scorpio* is, of course, a 'nocturnal' Sign. *Antarês*, under the Ak. name of *Dar-Lugal* ('The Evil-one, the King.' Cf. the Turko-Tatar root *tar*, whence come words meaning 'to be evil,' 'angry,' etc.), forms the twenty-fourth lunar Asterism, the patron-divinity of which is Lugal-tudda ('the Lusty-king'), who is identical with Zu (a name meaning 'a stormy-wind,' also a 'kind of vulture'), 'the divine Storm-bird', stealer of the lightning (Vide Sayce, *Rel. Anct. Babs.* p. 293 *et seq.*). The ideograph which is rendered *Gir*, pictorially represented a 'blade,' 'sting' or 'pointed tail'; and the word means 'to strike,' 'scorpion,' 'plough' (the blade of which strikes through the earth), and 'lightning,' 'the torment of a scorpion when he striketh a man' being compared with the burning of lightning. Hence the connexion between the red *Scorpion*-star *Antarês*, and the Lightning-god, its patron-divinity. *Antarês* is equated with the seventh antediluvian king Euedôranchos = Ak. *Dar-an-khu* ('the Evil-one, the Heaven-bird') with a prosthetic vowel. The importance of the original *Girtab*-stars is shown incidentally by a Semitic name for them having been preserved in Hêsychios :—Λῆσος [= Sem. Lêsath, ictus Scorpii.] *ὁ ἐν τῇ ῥάχει τοῦ Σκορπίου λαμπρὸς ἀστήρ* (For further reference to *Scorpio*, vide R. B. Jr., *L. K. O.* sec. xvii.; *Z.* sec. viii.). The overthrow of the Sun by the Scorpion-darkness is excellently and unwittingly illustrated by Ovid in his account of the hapless fate of Phaetôn :—

> 'Est locus, in geminos ubi brachia concavat arcus
> Scorpios ; et caudâ, flexisque utrinque lacertis,
> Porrigit in spatium signorum membra duorum.
> Hunc puer ut nigri madidum sudore veneni
> Vulnera curvatâ minitantem cuspide vidit ;
> Mentis inops, gelidâ formidine lora remisit'
>
> (*Metam.* ii. 195-200).

IX.—‘The Constellation of the *Archer*.

1. The one at the point of the arrow—γ (3).
2. The one at the grip of the left hand—δ (3).
3. The one in the southern part of the bow—ϵ (3).
4. The more-southerly of those in the northern part of the bow—λ (3).
5. The more-northerly of those at the end of the bow—μ (4).
6. The one at the left shoulder—σ (3).
7. The one in front of this towards the arrow—ϕ (4).
8. The nebulous and double-star at the eye—ν^2 (neb.).
9. The foremost of the three in the head—ξ^1 (4).
10. The middle-one of them—o (4).
11. The hindmost of the three—π (4).
12. The more-southerly of the three in the northern part of the martial-cloak—43 (5).
13. The middle-one of them—ρ^1 (4).
14. The northern-one of the three—υ (4).
15. The dim-one following the three—54 (6).
16. The more-northerly of the two at the southern part of the martial-cloak—61 (5).
17. The more-southerly of them—56 (6).
18. The one at the right shoulder—χ^3 (5).
19. The one at the bend of the right arm—52 (4).
20. Of the three in the back, the one towards the broad of the back—ψ (5).
21. The middle-one of them, and towards the shoulder-blade—τ (4).
22. The remaining-one, and below the armpit—ζ (3).
23. The one at the fore and left ancle—β (2).
24. The one at the knee of the same leg—α (2).
25. The one at the fore and right ancle—η (3).
26. The one at the left thigh—θ *?* (3).
27. The one at the right hind leg—ι (3).
28. Of the four in the growth of the tail, the foremost on the northern side—ω (5).
29. The hindmost on the northern side—60 (5).
30. The foremost on the southern side—59 (5).
31. The hindmost on the southern side—62 (5).

Thirty-one stars in all, whereof two (are) of the 2nd magnitude, nine of the 3rd, nine of the 4th, eight of the 5th, two of the 6th, one nebulous.’

Note.

The ‘diurnal’ Sign *Sagittarius*, itself reduplicated in the southern constellation, *Centaurus*, is a reduplication of Sol radiate; and appears in several instances on the monuments in form very similar to that which it bears on a modern celestial globe (Vide R. B. Jr., *C. E. A.* Fig. xxxiii. p. 38). From *Tab. Sm.* 162, a Fragment of the Euphratean Planisphere (Vide R. B. Jr., *E. S. R.* Part II. Fig. i, p. 16), we see that its Ak. name was a form which has been rendered *Utucagaba* (the 'Light-of-the-White-face.' Sayce), or *Udgudûa* (Pinches), the form which I have adopted, and which I understand as meaning 'Smiting-sun-face.' The Ak. name is rendered by the As. *Yumu nahri* (*W. A. I.* V. xlvi. No. 1, l. 43. 'Day-of-dawn,' ='Dawn-of-day'); and the idea is the Rising-sun shooting out his arrowy rays across heaven. Just as a modern constellation is, in some instances, divided into sub-constellations, *e.g.*, the *Malus*, *Vela*, *Puppis* and *Carina* of *Argo*, so in *W. A. I.* III. lvii. No. 5, l. 9. we find *Udgudûa* divided into (1) *Kumaru* ('the Dusky-part'); (2) Ak. *Ega*, As. *Agu* ('Crown'), *Uzzu*, ('Glory') = the bright upper forepart of the constellation, elsewhere called *Papilsak* ('Winged-fire-head'), whence the astronomical abbreviation of the Sign *Pa;* and (3) *Sugab* ('the Left-hand'), the stars in which asterism would be Nos. 1 and 2 in the above List (Vide R. B. Jr., *E. S. R.* Part IV. Fig. iii. p. 12). In *W. A. I.* III. lvii. No. 6, *Udgudûa* and *Papilsak* are both mentioned in the second Group of Sevens formed by the seven *Lu-masi*, a phrase which originally signified 'Sheep-of-the-Hero' (*i.e.*, the Sun, according to Prof. Sayce), and afterwards meant 'Twin-sheep' or 'Twin-oxen.' Regarded in this narrower aspect, as a pair of twin-stars,' *Udgudûa* (probably) = ϵ and σ *Sag.* and *Papilsak* (probably)

= λ and μ *Sag.* *Papilsak* was close to the ecliptic, for in *W. A. I.* III. liii. No. 1, Ob. l. 14 we read:—*Lubat-guttav ina lib kakkab Papilsak nazuz* (‘*Jupiter* in the midst of the asterism of the *Winged-fire-head* is fixed’). There are few constellations in which the figures of the monuments and the descriptions in the Tablets show a closer connexion between Euphratean and Classical forms than in the case of *Sagittarius*. The wing of the Euphratean *Archer* has become the ‘martial cloak’ (*List*, No. 12) of the Ptolemaic figure; and this garment, in a modern representation before me, is apparently flying in the wind in a manner exactly similar to the wing of the original figure on the Sippara boundary-stone.

The reader will bear in mind that in these Notes to the Hipparcho-Ptolemy Star-list, I am merely inserting such detail as may enable him to understand clearly the rationale of the constellation-figures; and am not in any way dealing with them exhaustively. (For further references to *Sagittarius*, vide R. B. Jr., *Z.* sec. ix.; *E. R. S.* Part iv. pp. 10-15; *C. E. A.* pp. 37-8).

X.—‘The Constellation of *Capricorn*.

1. The northern of the three in the hindmost horn—α^1 (6).
2. The middle-one of them—ν (6).
3. The southern-one of the three—β (3).
4. The one at the end of the foremost horn—ξ^2 (6).
5. The southern of the three in the muzzle—o (6).
6. The foremost of the two remaining-ones—π (6).
7. The hindmost of them—ρ (6).
8. The foremost of the two under the right eye—σ (5).
9. The more-northerly of the two in the neck—τ^2 (6).
10. The more-southerly of them—υ (5).
11. The one below the right hip-joint—ψ (4).
12. The one at the bent left knee—ω (4).
13. The one at the left shoulder—24 (4).
14. The foremost of the two together under the belly—ζ (4).

15. The hindmost of them—36 (5).
16. The hindmost of the three in the middle of the body—φ (5).
17. The more-southerly of the two remaining and preceding ones—χ (5).
18. The more-northerly of them—η (5).
19. The foremost of the two in the back—ϑ (4).
20. The hindmost of them—ι (4).
21. The foremost of the two in the southern part of the fishy-spine—ϵ (4).
22. The hindmost of them—κ (4).
23. The foremost of the two beside the tail—γ (3).
24. The hindmost of them—δ (3).
25. The foremost of the four at the northern part of the tail—42 (4).
26. The southern of the three remaining-ones—μ (5).
27. The middle-one of them—λ (5).
28. The northern-one of them, and at the end of the tail—46 (5).

Twenty-eight stars in all, whereof four (are) of the 3rd magnitude, nine of the 4th, nine of the 5th, six of the 6th.'

Note.

The Akkadai called the tenth month 'the Cave of the rising' (of the Sun), and its 'nocturnal' Sign *Capricornus*, the solar Goat, a reduplication of the solar Ram, represents the Sun rising from the great deep of the Under-world, from 'the blind cave of eternal night' (Shakspere), and hence a demi-fish. The Nocturnal-sun is also closely connected in idea with the feeble infant sun of winter, born at the solstice, the Christmas Yule (= Old Norse *hjul*, 'wheel'—of the sun); and it was in accordance with the principle of adapting Christian to Pagan forms that, as S. Chrysostom (*Homily* xxxi.) informs us, the birthday of Christ was arbitrarily fixed on Dec. 25. The Akkadian goat-god Uz was a solar divinity who, clad in goat-skins, presided over the revolution of the Sun; and the Goat, a sacred animal alike in the Valleys of the Euphrates and the Nile, equally appears in a solar connexion with the Vedic Pushan, the Semitic Dionysos, and the Norse Thorr. The *Capricorn* of the Babylonian monuments is, to all intents and purposes, identical in form with the *Capricorn* of a modern almanac; and *Muna-kha* ('the Goat-fish') forms the last of the Lunar Mansions (*W. A. I.* V. xlvi. No. 1, l. 38). Prof. Hommel (*Proc.* Soc. Bib. Archaeol. April, 1886, p. 119) has shown that the patron-divinity of the solar hero Gilgames was the Moon-god, who bore the title of *Amar-tudda* ('the Lusty-bull'). Agreeably with this, we find the eighth antediluvian Babylonian king, Amempsînos (= Ak. Amar-sin), 'the Bull-moon,' equated with the star *Algedi* ('the Goat,' a^1 and a^2 *Cap.*, Ak. *Uz*, Bab. *Enzu*), and thus ruling over the nocturnal sun. The ninth antediluvian king also falls, in his stellar aspect, within this Sign, Ôpartês = Ak. *Ubara-tutu*), 'the Servant-of-Death,' *i.e.*, the Setting-sun, being equated with *Deneb Algedi* ('the-Tail-of-the-Goat,' δ *Cap.*). Various interesting notices of *Capricorn* and parts of it occur in the Tablets. Thus in *W. A. I.* III. lvii. No. 7, sec. 4, we read:—

1. *Kakkab Dil-bat ina arakh Sabadhi nip-kha;*
'The-planet *Venus* in the month Sebat a-rising (makes;)
3. *Venus* at the tails (*ina zumbi*) at sunrise is-seen.'

The scribe is apparently referring to the closely adjoining tails of *Capricorn* and *Piscis Australis*.

4. 'The third day *Venus* on the horn (of the *Goat-fish*)
5. Rises. In the month Sebat, on the first day on the horn of the constellation of the *Yoke* (Ak. *Sutul*, As. *Niru*)
6. It-crosses.
8. *Kakkab Uz saku-sa-risi kakkabi Muna-kha.*
The-star of-the-*Goat* = the-top-of-the-head of-the-constellation of-the-*Goat-fish*.
8a. The constellation of the *Yoke* = the *Goat-fish*.'

The reader will observe that the insertion of explanatory glosses occurs in the Tablets; and, that, as we might anticipate, the same star, asterism or constellation frequently had various names. The *Yoke* appears to have been a popular name for the constellation of the *Goat-fish* (*Capricorn*), and to have been suggested by the configuration of its three principal stars *α, β,* and *δ,* (Vide R. B. Jr., *E. S. R.* Part i. p. 20); just as in Classical times *Ôríôn* was popularly called *Cock's-foot.*

In *W. A. I.* III. lvii. No. 7, sec. 1, we read:—

1, 2. *Ilu Sin, ilu Sar-ner-ra, ilu-Gal-lam-ta-ud-du-a ina bi-rit karni kakkabi.* 'The-god the-Moon, the god *King-of-the-Ecliptic* (lit. 'Yoke'), (and) the god the *Bull-of-the-Rising-sun* close to the horn of the constellation (of the *Goat-fish* are).

3. (They and) the star of the *Goat* (*Uz*) are seen, and on the third day they are fixed.

5. The god *Sarnerra* and the god *Gallamta*

6. (are) the god *Guttav* ('Bull-of-heaven,' *i.e.*, *Jupiter*) and the god *Zalbat'* (*Mars*, vide *sup.* p. 72).

The astronomical abbreviation of the Sign is *Sah*, = As. *Sahu* ('Ibex,' 'rough-goat.' For further reference to *Capricornus*, vide R. B. Jr., *L. K. O.* sec. xix.; *Z.* sec. x.; 30 *S.* pp. 7-15; *E. S. R.* Part i. pp. 20-25; Part v. p. 38).

XI.—'THE CONSTELLATION OF THE *Water-pourer.*

1. The one at the head of the *Water-pourer*—25 (5).
2. The brighter of the two in the right shoulder—α (3).
3. The dimmer-one under it—ο (5).
4. The one in the left shoulder—β (3).
5. The one below it in the back, as if under the armpit—ξ (5).
6. The hindmost of the three in the left arm on the garment—ν (4).
7. The middle-one of them—μ (4).
8. The foremost of the three—ε (4).
9. The one in the right arm—γ (3).
10. The northern-one of the three at the end of the right hand—π (3).
11. The foremost of the two remaining and northern-ones—ζ (3).

12. The hindmost of them—η (3).
13. The foremost of the two together in the *Urn* in the right hand—θ (4).
14. The hindmost of them—ρ (5).
15. The one at the right buttock—σ (5).
16. The southern of the two in the left buttock—ι (4).
17. The more-northerly of them—37 (6).
18. The more-southerly of the two in the right leg—δ (3).
19. The more-northerly of them and under the bend of the leg —τ^2 (4).
20. The one in the back of the left thigh—53 (5).
21. The more-southern of the two in the bend of the left leg—υ (5).
22. The more-northerly of those under the knee—35 ? (5).
23. The foremost of those at the flow of the *Water* from the hand—67 ? (4).
24. The next one south of the aforesaid—λ (4).
25. The one next to this after the bend (of the stream)—83 (4).
26. The next one to this—ϕ (4).
27. The one south of this in the bend—χ (4).
28. The more-northerly of the two south of this—ψ^1 (4).
29. The more-southerly of the two—ψ^2 (4).
30. The one apart from them towards the south by itself—94 (5).
31. The foremost of the two together after them—ω^1 (5).
32. The hindmost of them—ω^2 (5).
33. The northern of the three in the following group—103 (5).
34. The middle-one of the three—106 ? (5).
35. The hindmost of them—108 ? (5).
36. The northern of the three in like manner in a row—98 (4).
37. The middle-one of them—99 (4).
38. The more-southerly of the three—101 (4).
39. The foremost of the three in the remaining group—86 (4).
40. The more-southerly of the two remaining-ones—89 (4).
41. The more-northerly of them—88 (4).
42. The last (star) of the *Water* and at the mouth of the *Southern Fish*—α *Pis. Aust.* (1).

Forty-two stars in all, whereof one (is) of the 1st magnitude, nine of the 3rd, eighteen of the 4th, thirteen of the 5th, one of the 6th.

The Unformed-stars around him.

1. The foremost of the three following in the bend of the *Water* —2 *Ceti* (4).
2. The more-northerly of the two remaining-ones—6 *Ceti* (4).

3. The more-southerly of them—7 *Ceti* (4).

Three stars in all, greater than the 4th magnitude.'

Note.

The 'diurnal' Sign *Aquarius* is a reduplication of the Sun of storm and rain, a concept like that of the Vedic Indra, the Ak. Mermer ('the Very-glorious') and Uras ('the Veiled'), Sem. Ramânu ('the Exalted.' So Hêsychios, *Rhamas: ὁ ὕψιστος θεός.*), Heb. (through false punctuation) Rimmon. 'Babylonia is still reduced to an impassable marsh by the rains of January' (Prof. Sayce, in *Trans.* Soc. Bib. Archaeol. iii. 164); and the kosmogonic legend connected with the month, and related in the eleventh Tablet of the Gilgames Epic, is that of the Deluge. The watery part of the celestial sphere occupied by the *Dolphin*, the *Demi-sea-horse*, just rising from the springs of Ocean, the *Goat-fish*, the *Water-pourer*, the *Southern Fish*, the zodiacal *Fishes*, and the *Sea-monster*, formed in the Euphratean scheme 'the Region of Êa,' the Fish-god, and Lord-of-the-Deep. Xisouthros (= Ak. Zi-susru, 'Spirit of heaven.' Sayce. = Ak. Xasisadra, 'the Reverential.' Geo. Smith), the tenth and last of the antediluvian Babylonian kings is equated with *Skat* ('the Leg,' δ *Aquarii*), also called *Sakib* ('the Pourer'), a proper star for the Deluge-hero, whose name is also given as Sisithros and Sisythês, which latter is the corrected reading of Σκύθης (*Peri tês Syriês Theou*, xii.). The astronomical abbreviation of the Sign is *Gu* ('the Urn'); cf. Yenissei *Kú* ('a Vessel'), Ancient Chinese *Yu* ('a Vase full'), Tchagatai *Ka-b*, Turkic *Qa-b*, Kottic *Ha-m*, etc. The Ak. *Gu* = As. *Kâ*, the first meaning of which is unknown, but which I would compare with the Heb. *ka-d* ('pitcher,' 'jar'). The asterism *Gu*, which only included a part of the Ptolemaic *Aquarius*, appears in the form *Gu-la*, in which *la* is the emphatic prolongation, but also supplies a punning reference to the goddess *Gula* ('the Great'), who was identified with the goddess *Ba-hu* (= Heb. *bohu*, 'wasteness,' *Gen.* i. 2), the Phoenician Baau. Bahu = the Ak. Gurra ('the Watery-deep'), the waters of the abyss in their original chaotic state; and is thus suitably connected with *Aquarius.*

In *W. A. I.* III. lviii. No. 1, sec. 1, we read:—

2. *Kakkab Gut-tav ina kakkabi Gu-la yu-dan-nat.*
'The-planet *Jupiter* in the-asterism of-the-*Urn* lingers.'
4. *'Ilu Gut-tav ina kakkabi Gu-la ana 'ilu Sak-us dikhu.*
'The-god *Jupiter* in the-asterism of-the-*Urn* to the-god *Saturn* (is) opposite.'

(For further references to *Aquarius*, vide R. B. Jr., Z. sec. xi.; *E. S. R.* Part ii. Fig. ii., p. 24; Part iv. pp. 7, 19-21).

XII.—'THE CONSTELLATION OF THE *Fishes.*

1. The one in the mouth of the foremost *Fish*—β (4).
2. The more-southerly of the two in its head—γ (4).
3. The more-northerly of them—7 (4).
4. The foremost of the two in the back—θ (4).
5. The hindmost of them—ι (4).
6. The foremost of the two in the belly—κ (4).
7. The hindmost of them—λ (4).
8. The one in the tail of the same *Fish*—ω (4).
9. The first from the tail of those down his *Cord*—41 (6).
10. The hindmost of them—51 (6).
11. The foremost of the three bright-ones in a row—δ (4).
12. The middle-one of them—ε (4).
13. The hindmost of the three—ζ (4).
14. The more-northerly of the two small-ones below them in the bend—80 (6).
15. The more-southerly of them—89 (6).
16. The foremost of the three after the bend—μ (4).
17. The middle-one of them—ν (4).
18. The hindmost of the three—ξ (4).
19. The one at the knot of the two *Cords*—α (3).

20. The foremost from the knot of those in the northern *Cord*—o (4).
21. The southern of the three after each other in a row—π (5).
22. The middle-one of them—η (3).
23. The northern-one of the three and at the end of the tail—ρ (4).
24. The more-northerly of the two in the mouth of the hindmost *Fish*—82 (5).
25. The southern-one of them—τ (5).
26. The hindmost of the three little-ones in the head—68 (6).
27. The middle-one of them—67 (6).
28. The foremost of the three—65 (6).
29. The foremost of the three at the spine of the back, after the one at the bent-arm of *Andromedê*—ψ^1 (4).
30. The middle-one of them—ψ^2 (4).
31. The hindmost of the three—ψ^3 (4).
32. The more-northerly of the two in the belly—υ (4).
33. The more-southerly of them—ϕ (4).
34. The one in the hindmost spine near the tail—χ (4).

Thirty-four stars in all, whereof two (are) of the 3rd magnitude, twenty-two of the 4th, three of the 5th, seven of the 6th.

The Unformed-stars around them.

1. The foremost of the two northern stars of the quadrilateral below the foremost *Fish*—27 (4).
2. The hindmost of them—29 (4).
3. The foremost on the southern side—30 (4).
4. The hindmost on the southern side—33 (4).

Four stars in all, of the 4th magnitude.

The stars of the Zodiac itself (are) 346 (in number), whereof 5 (are) of the 1st magnitude, 9 of the 2nd, 64 of the 3rd, 133 of the 4th, 105 of the 5th, 27 of the 6th, 3 nebulous, and besides this number, the *Tress*.'

Note.

This dark and 'nocturnal' Sign, originally *Piscis*, for 'the double month Adar and Ve-Adar would be the origin of the double Pisces' (Sayce, in *Trans.* Soc. Bib. Archaeol. iii. 166), is a reduplication of the Nocturnal-sun, the Fish-sun (Cf. Apollôn Delphinios) concealed in the waters, like the Vedic Sûrya, who was 'drawn by the gods from the ocean where he was hidden' (*Rig-Veda*, X. lxii. 7), and thus brought forth to restore again the face of the earth. For the archaic myth or legend attached to the month is that of the Resumption of the Cultivation of the Earth after the catastrophe of the Flood. The Ak. name of the month is *Se-kisil* ('the Sowing-of-Seed'); and the connexion of the Sign with this sowing finds a last echo in the statement of the modern astrologer that it is 'exceedingly fruitful and luxuriantly productive.' The solar Marduk, who in a planetary phase is *Jupiter*, in this particular month is reduplicated in a stellar phase as 'the Star of the *Fish* of the god Êa' (*W. A. I.* III. liii. No. 2, l. 12), the latter divinity being the lord of this watery region, an interesting indirect illustration of the fact that the original Fish connected with the month was the Sun. The 'Cord' (Ak. *Dur*, As. *Riksu*) mentioned above reappears at all events in late Tablets as *Riksu Nûni* ('the Cord of the Fishes.' Vide Epping and Strassmaier, in *Zeit. für As.* Dec. 1892, p. 224). The As. *Riksu* also reappears in the Arabic *Rischa*, the name of *a Piscium*, 'the tail-connecting link' of Aratos (*Phainom.* 245) and translated *Nodus* in Cicero's Aratos. The astronomical abbreviation of the Sign is *Zib*, a word probably connected with the Turko-Tatar root *sub*, *suv*, *su*, 'water,' 'lustre,' whence come such words as the Uigur *sub*, Tchagatai *su*, *suj*, Koibal-Karagass *sug*, *su*, Tshuwash *su*, *siva*, *siv*, 'water.' The *Water* (Ὕδωρ), as a name applied to this part of the heavens, appears in Aratos (*Phainom.* 389-99). The 'Chaldaeans' called the *Northern Fish* a 'tunny' (Vide *inf.* p. 177). The connexion between 'water' and 'lustre' is obvious, and, in further illustration of the meaning of *Zib*, we find the goddess *Dilbat* ('the Ancient-proclaimer'—of morn and even, = *Venus*) called *Zib-zik* (*W. A. I.* II. xlviii. 51. 'Bright-destiny,' lit. 'the Lustrous, the Destiny'). Late classical writers connect Venus (Aphrodîtê) and Cupid with piscine forms in Babylonian waters (Vide *inf.* p. 115) Venus, of course, here = the female Dagôn, Derketô (Vide *inf.* p. 188).

'*The Star-list of the remaining Southern Figures outside the Zodiac.*

I.—THE CONSTELLATION OF THE *Sea-monster.*

1. The one at the end of the nostril—λ (4).
2. Of the three in the muzzle the hindmost at the end of the jaw-bone—α (3).
3. The middle-one of them and in the middle of the mouth—γ (3).
4. The foremost of the three and at the under-jaw—δ (3).
5. The one at the eye-brow and eye—ν (4).
6. The one more-northerly than this, as if at the hair—ξ^2 (4).
7. The one in front of these, as if at the mane—ξ^1 (4).
8. The northern-one on the foremost side of the quadrilateral in the chest—ρ (4).
9. The southern-one of the foremost side—σ (4).
10. The northern-one of the hindmost side—ϵ (4).
11. The southern-one of the hindmost side—π (3).
12. The middle-one of the three in the body—τ (3).
13. The southern-one of them—υ (4).
14. The northern-one of the three—ζ (3).
15. The hindmost of the two towards the root-of-the-tail—θ (3).
16. The foremost of them—η (5).
17. The northern-one of the hindmost side of the quadrilateral in the root-of-the-tail—ϕ^2 (5).
18. The southern-one of the hindmost side—ϕ^4 (5).
19. The northern-one of the foremost side—ϕ^1 (5).
20. The southern-one of the foremost side—ϕ^3 (5).
21. Of the two at the ends of the forks of the tail, the one at the northern fork—ι (3).
22. The one at the end of the southern fork of the tail—β (3).

Twenty-two stars in all, whereof ten (are) of the 3rd magnitude, eight of the 4th, four of the 5th.'

Note.

Cetus (*Kêtos*), the *Sea-monster*, which appears on the coins of Itânos (Vide *inf.* p. 189), is in origin the Bab. Mummu-Tiamâtu, Heb. Mehûmâh-Tehôm ('the-Chaos-of-the-Deep'), the Môumis and Tauthê of Damaskios (*Peri Archôn*, cxxv.), the Thavatth of Bêrôsos (*Chal.* i. 4). It represents primarily the state of chaos, 'when the earth was waste and wild, and darkness was upon the face of the deep' (*Gen.* i. 2); and, secondarily, the reduplication of this in the dark and stormy sea whose tempests, clouds and gales form the brood of Tiâmat, which in Euphratean myth were specially regarded as seven Evil Spirits of great and malignant potency. The Deep in archaic idea has a far wider and profounder meaning than is contained in our word 'ocean.' It is formed by the undefined blending of the Oversea—the 'mare magnum sine fine,' in which the solar and lunar barques sail; the Ocean-proper, which of unknown and awful vastness enrings the world; and the Under-sea, invisible and fathomless to man, and into which the heavenly bodies sink. Tiâmat and her brood, as of course, come into conflict with the bright powers, Sun-god and Moon-god; and the victory of Merôdakh over her forms one of the staple subjects of Euphratean Hymns, and is reduplicated in Syrian regions in the triumph of Perseus over the Sea-dragon (Kêtos), a contest localized at Joppa. The sickle-shaped scimitar of Marduk (= the crescent-moon) is also reproduced in the Sem. *khereb*, Gk. *harpê*, with which Barsav-Perseus is armed. This is ever a potent weapon against the darkness-powers (Vide R. B. Jr., *U.* sec. vii.). Tiâmat is the head of the *tanninîm* ('sea-monsters.' 'Whales.' A. V.), and is called in Ak. Bis-bis ('Dragon'), As. Mamlu, and Rahâbu, Heb. Rahabh ('Sea-monster,' hence 'Crocodile,' and used symbolically for 'Egypt'). The Ak. *bis-bis* (intensive reduplication) is connected with the Turko-Tatar root *bis*, *bos*, 'to boil,' 'to bubble,' 'to be angry,' 'to be evil,' etc. *Bis-bis* is 'the Fiery-one,' the Livyâthân, who 'maketh the deep to boil like a pot' (*Job*, xli. 31). And, as illustrated by the root *bis*, the idea of moral evil and wicked hostility to the gods and the good, is also inextricably connected with Tiâmat and her brood. She is further reduplicated in *Hydra*, and the seven Evil Spirits appear to be reduplicated, to some extent, in certain southern constellations (Vide Smith and Sayce, *Chal. Ac. Gen.* p. 99). They habitually live 'in the lower part of heaven' (= the nocturnal southern sky) and devise evil 'at sunset.' One is like a Sea-monster (= *Cetus*), another a Scorpion (= *Scorpio*), a third a Leopard (= *Therion*, *Lupus*), a fourth a Serpent (= *Hydra*), a fifth a raging Dog (= *Canis Maj.*), an animal disliked by the Semite, a sixth 'the evil Wind,' the Storm-bird (= *Corvus*).

Cetus, a type of darkness, is styled by Aratos 'the dusky *Monster*' (*Phainom.* 398); κυάνεος, Lat. *obscurus*, expresses the blue-black of the nocturnal sky in a dark constellation. Hêsychios has preserved a very interesting name of the Sign—Κέμμορ· μέγα Κῆτος. This is the Bab.-As. *Kumaru* ('the Dusky. Vide *sup.* p. 78), Heb. *kemer*, 'blackness'; the Khemarîm (Zeph. i. 4. = 'Black-robed ones'), are 'the idolatrous priests' (A. V. 2 *Kings*, xxiii. 5). The Sem. *kumaru* is borrowed from the Sum.-Ak. *kumar*, which is connected with the Turko-Tatar root *kom*, *kum*, an allied variant of which is *tom*, *tum*

(Vide Vámbéry, *Etymologisches Wörterbuch*, secs. xcvii., clxxix.), one of the root-meanings of which is 'darkness,' 'night,' 'mist.' It would appear probable that *Cetus*, as well as the hinder part of *Sagittarius*, was called *Mul Kumar* ('the Dusky Constellation'); and the name 'the Dusky Star' would be peculiarly appropriate to *Mira* ('the Wondrous,' *o Ceti*) which 'during fifteen days attains and preserves its maximum brightness, which is equal to that of a star of the 2nd magnitude. Its light afterwards decreases during three months, until it becomes invisible' (Guillemin, *The Heavens*, 1878, p. 306). It is not mentioned in the List.

II.—'The Constellation of *Ôrîôn*.

1. The nebulous-one in the head of *Ôrîôn*—λ (nebulous).
2. The bright one at the right shoulder reddish-yellow—α (1).
3. The one at the left shoulder—γ (2).
4. The one behind under this—32 (4).
5. The one at the bend of the right arm—μ (4).
6. The one at the right wrist—74 (6).
7. The hindmost and double-one of the southern side of the quadrilateral at the end of the right arm—ξ (4).
8. The foremost of the southern side—ν (4).
9. The hindmost of the northern side—72 (6).
10. The foremost of the northern side—69 (6).
11. The foremost of the two in the shepherd's crook—χ^1 (5).
12. The hindmost of them—χ^3 (5).
13. The hindmost of the four towards the south as in a straight line—ω (4).
14. The one preceding this—38 (6).
15. The one yet preceding this—33 (6).
16. The remaining-one and foremost of the four—ψ^2 (5).
17. The more-northerly of those in the spear of the left hand—15 (4).
18. The second from the most-northerly-one—11 (4).
19. The third from the most-northerly-one—6 (4).
20. The fourth from the most-northerly-one—π^4 (4).
21. The fifth from the most-northerly-one—π^2 (4).
22. The sixth from the most-northerly-one—π^1 (3).

23. The seventh from the most-northerly-one—π^3 (3).
24. The eighth from the most-northerly-one—π^5 (3).
25. The remaining and most-southerly-one of those in the spear—π^6 (3).
26. The foremost of the three at the belt—δ (2).
27. The middle-one of them—ϵ (2).
28. The hindmost of the three—ζ (2).
29. The one at the haft of the scimitar—η (3).
30. The northern of the three lying together at the end of the scimitar—42 (4).
31. The middle-one of them—θ^2 (3).
32. The southern of the three—ι (3).
33. The hindmost of the two below the end of the scimitar—49 (4).
34. The foremost of them—υ (4).
35. The bright-one at the end of the left foot, common to the *Stream*—β (1).
36. The more-northerly of those over the ball-of-the-ankle-joint in the leg—τ (4).
37. The one below the left heel beyond (it)—29 (4).
38. The one below the right and hindmost knee—κ (3).

Thirty-eight stars in all, whereof two (are) of the 1st magnitude, four of the 2nd, eight of the 3rd, fifteen of the 4th, three of the 5th, five of the 6th, and a nebulous-one.'

Note.

The figure is represented kneeling upon one knee in the *Hêraklês-Eugonasin* attitude, and, like *Boôtês*, holding the Shepherd's crook. Μάχαιρα may, of course, also be translated 'short sword' (As to *Ôriôn*, vide *inf.* p. 253 *et seq.*; p. 286). In the Euphratean sphere, according to Prof. Sayce (*Herod.* p. 403), Tammuz (Ak. Duwu-zi) 'represented Orion.' The Sun-god is naturally reduplicated in the brightest of constellations; and Tammuz is identical with the very ancient Sum. divinity Nin-girsu ('the Lord-of-the-River-bank.' Vide Sayce, *Rel. Anct. Babs.* p. 243-4). Like *Boôtês*, Tammuz-Ôriôn is pre-eminently a 'Shepherd,' the keeper of the flock of stars. According to archaic legend, it was at Eriduga ('the Good-city') on the Euphratês, the primeval centre of the Êa-cult and of Sumerian civilization, that Tammuz-Ningirsu received his fatal wound, just as Phaëthôn perished at the Eridanos (Vide R. B. Jr., *E.* p. 52); and, like Tammuz, the sun-god Ningirsu is constellationally reduplicated. In *Tab. Sm.* 1925 we find observations of the stars of 'the god Ningirsu (= *Ôrîôn*, or part of *Ôrîôn*), the god Gut-tav (= *Jupiter*), and the goddess Dilbat' (= *Venus*). All these mythic elaborations are resolvable into extreme simplicity. The Sun (Tammuz-Ningirsu-Phaëthôn-Ôrîôn) is slain (devoured) by the Monster of darkness and the deep (*Cetus*) at the Ocean-stream; and this is constellationally reduplicated in *Ôrîôn*, 'Lord-of-the-River-bank,' on the margin of *Eridanus*, holding up his spear against the advancing *Sea-monster*, which touches the *Stream* on its further side. As we read in the *Tale of the Seven Evil Spirits* (Col. i. 6), 'Like a Sea-monster to the Stream' (they went).

III.—'THE CONSTELLATION OF THE *Stream*.

1. The one after that at the end of the foot of *Ôrîôn* and at the beginning of the *Stream*—λ (4).
2. The one more-northerly than this at an angle towards the shin of *Ôrîôn*—β (4).
3. The hindmost of the two after this in a row—ψ (4).
4. The foremost of them—ω (4).
5. The hindmost of the two in a row opposite—μ (4).
6. The foremost of them—ν (4).
7. The hindmost of the three after this—ξ (5).
8. The middle-one of them—o^2 (4).
9. The foremost of the three—o^1 (4).
10. The hindmost of the four one after another in the adjoining-space—γ (3).
11. The one in front of this—π (4).
12. The one besides in front of this—δ (3).

13. The foremost of the four—ϵ (3).
14. Likewise the hindmost of the four in a row in the adjoining-space—ζ (3).
15. The one in front of this—ρ^3 (4).
16. The one besides in front of this—η (3).
17. The foremost of the four—? (Unidentified).
18. The one in the curve of the *Stream* touching the chest of the *Sea-monster*—τ^1 (4).
19. The one behind this—τ^2 (4).
20. The foremost of the three in a row—τ^3 (4).
21. The middle-one of them—τ^4 (4).
22. The hindmost of the three—τ^5 (4).
23. The northern-one of the foremost side of the four one after another as in a trapezium—τ^6 (4).
24. The more-southerly-one of the foremost side—τ^7 (5).
25. The foremost-one of the hindmost side—τ^8 (4).
26. The one behind it, and the remaining one of the four—τ^9 (4).
27. The northern of the two standing-together towards the east—υ^6 (4).
28. The more-southerly of them—υ^7 (4).
29. The hindmost of the two in a row after the bend—υ^5 (4).
30. The foremost of them—υ^4 (4).
31. The hindmost of the three one after another in the adjoining-space—υ^3 (4).
32. The middle-one of them—υ^2 (4).
33. The foremost of the three—υ^1 (4).
34. The bright-one last of the *Stream*—θ (1).

Thirty-four stars in all, whereof one (is) of the 1st magnitude, five of the 3rd, twenty-six of the 4th, two of the 5th.'

Note.

No. 34. In the Catalogue of Ulugh Beigh this star is called *Al-Dalîm* ('the Buckets'). *Eridanus* having been connected in idea with the Nile, it is not improbable that the southern star of the constellation was compared symbolically with the unknown source of the Nile in the far south, and likened to the Urn (= Buckets. These were used in pairs.) whence flowed the stream. Baily observes, 'Most of the commentators on Ptolemy's catalogue have supposed this star to be *Achernar* [= *Âkhir-al-nahr*, 'the End-of-the-River,' a 1st magnitude star]; but neither the longitude nor latitude of any of the copies will agree with the position of that star; and moreover *Achernar* was not visible at Alexandria. The magnitude has probably changed since Ptolemy's time' (*Memoirs Royal Astron. Soc.* xiii. 61). On this last point we need only remember the instance of the star *η Argûs*, which, now scarcely visible to the naked eye, at one time surpassed *Canopus* (Vide *inf.* p. 103) and almost rivalled *Sirius*.

In *E.* (1883) I have gone fully into the history of this constellation as connected with the Ocean-stream, the Milky-way (Vide R. B. Jr., *The Milky-way in Euphratean Stellar Mythology*, in the *Academy*, Jan. 9, 1892), the Nile (= Sem. *Nahal*, *Nahar*, As. *Nahru*, 'River'), and the Euphratês, Bab. Purattu ('the Curving-river'), Eg. Puharta, Ak. Puranûnu, Heb. Perâth, Phrâth, Median Ûprâto, Old Pers. Ûfrâtu, and in the Old Test. frequently spoken of simply as Nahar ('*the* River'), just as this constellation is simply called *Potamos*, *Fluvius*, etc. *Êridanos*, as an Aryan name, would mean 'the Strong-flowing'; but I have given various reasons for believing that it is also a Turanian river-name, and means 'the Strong-river,' just as Hêrodotos (i. 180) describes the Euphratês as 'a broad, deep, swift stream.' The ordinary Ak. word for 'river' is *hid*, *e.g.*, Hid-dagal ('River-great') = Heb. Hiddeqel (*Gen.* ii. 14), and the cuneiform sign for 'river' was also formerly read *aria*. This reading is now (rightly or wrongly) abandoned, but it must be remembered that we are still ignorant of great part of the Sum.-Ak. language; and it doubtless had other river-words besides *hid*.

Throughout the Turanian languages are found a remarkable series of water-words connected with the root *Ar*, *Ir*, *Er*, 'to be or become fluid,' *e.g.*, Tchagatai *eri*-mek, 'to melt;' Yakute *ur*-ak, Osmanli *ir*-mak, 'river.' So in Magyar we find *ar*, 'flood,' *ar*-viz, 'inundation,' etc., with cognate forms such as the Finnic *jarve*, Lapponic *jaüre*, etc. (Vide Budenz, *Magyar-Ugor Összehasonlító Szótár*, Budapest, 1873-8, p. 750). The form appears again in the Basque *ura*, 'water,' *errio*, 'river'; and in Ak. itself we have *a*, 'water,' *ara*, 'a going' (ideograph: water + leg), *ir*, 'a tear' (ideograph: water + eye) Whether there be an Ak. form *aria*, 'river,' or [illegible] Êri-dan (Ak. *dan*, 'strong')-*os*, as a Turanian name, may well mean 'the Strong-river,' *i.e.*, the Purattu-Euphratês. The connexion with *ir*, 'a tear,' reminds us that Êridanos was 'that stream of tears' (Aratos, *Phainom.* 360), as the scene of the fate of Tammuz, Phaëthôn, etc. In *W. A. I.* V. xlvi. 46 we find 'the constellation *Pur-edin* ('River-of-the-Plain'), which probably refers to Euphratês-Êridanos.

IV.—'THE CONSTELLATION OF THE *Hare*.

1. The northern-one of the foremost side of the quadrilateral over the ears—ι (5).
2. The southern-one of the foremost side—κ (5).
3. The northern-one of the hindmost side—ν (5).
4. The southern-one of the hindmost side—λ (5).
5. The one in the chin—μ (4).
6. The one at the end of the left fore-foot—ε (4).
7. The one in the middle of the body—α (3).
8. The one under the belly—β (3).
9. The more-northerly of the two in the hind feet—δ (4).
10. The more-southerly of them—γ (4).
11. The one at the loins—ζ (4).
12. The one at the end of the tail—η (4).

Twelve stars in all, whereof two (are) of the 3rd magnitude, six of the 4th, four of the 5th.'

Note.

Lepus, Gk. *Lagôs*, a dark constellation—'the pale *Hare*' (Aratos, *Phainom.* 370), is a reduplication of the Moon; as Sun to Moon, so *Ôrîôn* to *Lepus*. The amount of folk-lore and zoological myth which, all over the world, connects the Moon and the Hare is simply astonishing (Vide Gubernatis, *Zoological Mythol.* ii. 76-8; Hahn, *Tsuni-||Goam*, p. 137; R. B. Jr., *E.* secs. iv., xxviii.; *The Moon and the Hare*, in *Academy*, Jan. 26, 1884). *Lepus* is ever chased by the Sun-dog *Sirius*:—

> 'For, from behind
> The constant *Scorcher* comes as in pursuit,
> And rises with it, and its setting spies' (*H. D.* 339-41);

a reduplication of the endless pursuit of the Moon by the Sun. The Hare is called in Ak. *Ka-edinna* ('Face-of-the-Desert'), As. *Annabu*, Heb. *Arnebheth*, Arab. *Arnab;* and appears in a lunar connexion on a Cylinder (Lajard, *Culte de Mithra*, Pl. lii. 6) described in *E.* p. 11, and as a constellation-figure on a Syrian agate seal (*Ib.* Pl. lviii. 5). I have not yet met with a constellation of the *Hare* in the Tablets. The animal is shown on As. monuments from Kouyunjik. On a Trojan Whorl (Schliemann, *Troy and its Remains*, Fig. lxxv. p. 121) a Hare and two Antelopes are shown, on which Schliemann oberves, 'Burnouf describes the animal to the right as a *hare* [which it undoubtedly is,], the symbol of the Moon.' The Classical astronomical writers have nothing of importance to say about *Lepus* and were evidently much in the dark respecting its constellational history. It is somehow connected by them with Hermês. Thus, *ὁ Ἑρμῆς δοκεῖ θεῖναι αὐτὸν ἐν τοῖς ἄστροις* (*Katas.* xxxiv.). The only explanation which I can suggest of this is, that possibly the Sem. *an-na-bu* (‘hare’) was, either by error or purposely, also read (Semitically) *Ilu Nabu* (‘the god Nebô, = Hermês-Mercurius), and thus supplied a connexion between the god and the animal. On a Gk. Vase (*Brit. Mus. Cat.* 1870, Vol. II. No. 1296) the lunar Artemis holds up a Hare, but this may be in her general character as huntress. Hare-hunting is shown on the Vases.

V.—‘The Constellation of the *Dog*.

1. The one in the month most-brilliant, called the *Dog*, [illegible]ish-yellow—α (1).
2. The one at the ears—θ (4).
3. The one at the head—μ (5).
4. The northern of the two in the neck—γ (4).
5. The southern-one of them—ι (4).
6. The one at the chest—15 (5).
7. The northern of the two at the right knee—ν^3 (6).
8. The more-southerly-one of them—ν^2 (5).
9. The one at the end of the forefoot—β (3).
10. The foremost of the two in the left knee—ξ^1 (5).
11. The hindmost of them—ξ^2 (5).
12. The hindmost of the two in the left shoulder—o^2 (4).
13. The foremost of them—o^1 (5).
14. The one in the outgrowth of the left thigh—δ (3).
15. The one under the belly between the thighs—ϵ (3).
16. The one at the bend of the right foot—κ (4).
17. The one at the end of the right foot—ζ (3).
18. The one at the tail—η (3).

Eighteen stars in all, whereof one (is) of the 1st magnitude, five of the 3rd, five of the 4th, six of the 5th, one of the 6th.

The Unformed-stars around the Dog.

1. The one on the north of the head of the *Dog*—19 *Monoc.* (4).
2. The most-southerly of the four under the hind feet, as in a straight line—κ *Columbae* (4).
3. The one more-northerly than this—497 Lacaille—(4).
4. The one besides more-northerly than this—τ *Can. Maj.* (4).
5. The remaining and more-northerly-one of the four—521 Lacaille (4).

6. The foremost of the three west of the four, as in a straight line—μ *Columbae* (4).
7. The middle-one of them—λ *Columbae* (4).
8. The hindmost of the three—γ *Columbae* (4).
9. The hindmost of the two bright-ones below these—β *Columbae* (2).
10. The foremost of them—α *Columbae* (2).
11. The remaining and most-southern of the aforesaid (unformed-stars)—θ *Columbae* (4).

Eleven stars in all, whereof two (are) of the 2nd magnitude, nine of the 4th.'

Note.

As to *Canis Maj.*, vide *inf.* p. 275.

VI.—'THE CONSTELLATION OF THE *Fore-dog.*

1. The one in the neck—β (4).
2. The bright-one towards the hind-parts called the *Fore-dog*'—α (1).

Note.

As to *Canis Min.*, vide *inf.* p. 279.

VII.—'THE CONSTELLATION OF *Argô.*

1. The foremost of the two in the uppermost-part-of-the-ship—11 (5).
2. The hindmost of them—ι (3).
3. The more-northerly of the two lying together under the boss in the stern—ξ (4).
4. The more-southerly-one of them—o (4).
5. The one in front of these—π (4).
6. The bright-one in the middle of the boss—κ (3).
7. The foremost of the three under the boss—ρ (4).
8. The hindmost of them—τ (4).
9. The middle-one of the three—σ (4).
10. The one at the end of the stern—χ (4).
11. The more-northerly of the two in the hull of the stern—v (4).
12. The more-southerly-one of them—λ (3).
13. The more-northerly of the two in the deck of the stern—f (5).
14. The foremost of the three in a row—ϕ^1 (5).
15. The middle-one of them—ϕ^2 (4).
16. The hindmost of the three—ψ (4).

17. The bright-one behind these on the deck—δ (2).
18. The foremost of the two dim-ones under the bright-one—ω^1 (5).
19. The hindmost of them—ω^2 (5).
20. The foremost of the two above the bright-one aforesaid—A^1 (5).
21. The hindmost of them—A^2 (5).
22. The northern of the three at the bosses at the mast-hold—p^1 (4).
23. The middle-one of them—p^2 (4).
24. The southern-one of the three—p^3 (4).
25. The more-northerly of the two together be[illegible]hese—Lac. 794 (4).
26. The more-southerly-one of them—Lac. 783 (4).
27. The southern of the two in the midst of the mast—o^1 (3).
28. The more-northerly-one of them—o^2 (3).
29. The foremost of the two towards the end of the mast—o^3 (4).
30. The hindmost of them—o^4 (4).
31. The one below the three of the hindmost boss—ϵ (2).
32. The one at the severance of the deck—Lac. 864 (2).
33. The one between the rudders in the hull—i (4).
34. The dim-one behind this—r (6).
35. The bright-one behind this under the deck—ζ (2).
36. The bright-one more south than this at the lower part of the hull—η (2).
37. The foremost of the three behind this—q (2).
38. The middle-one of them—θ (3).
39. The hindmost of the three—ν (2).
40. The foremost of the two behind these, the one towards the severance (of the deck)—b (3).
41. The hindmost of them—c (3).
42. The foremost of the two in the northern and foremost rudder—Lac. 471 (4).
43. The hindmost of them—g (3).
44. The foremost of the two in the remaining rudder, called *Kanôbos*—a (1).
45. The remaining and hindmost one of them—h (3).

Forty-five stars in all, whereof one (is) of the 1st magnitude, seven of the 2nd, nine of the 3rd, nineteen of the 4th, seven of the 5th, two of the 6th.'

Note.

In the above description, as in Cicero's Aratos

(Vide R. B. Jr., *H. D.* Fig. lvii. p. 63), on the Farnese Globe, and in other instances, we find a demi-ship ; and the explanation of this singular fact is that the *Ship* of Hipparchos, like Greek ships generally, is derived from the Phoenician war-galley. A well-known example of a Phoenician bireme, figured by Assyrians at Kouyunjik (Vide Rawlinson, *Anct. Monarchies*, i. 550 ; Perrot, *Hist. of Art in Ph.* i. 34), shows the exact prototype whence was derived the form of the starry vessel to which the Hellenes gave naturally the famous name of Argô ('the Bright'). There is the high curving stern which, as it often ended in the neck and head of a goose, in a Greek galley was called χηνίσκος (List, No. 10). There is the high stern deck (No. 13) where the warriors were ranged; and the two rudders or long steering oars (No. 33). The prow consists of a low beak (ἔμβολος, Lat. *rostrum*) which projects from the keel; and the ship itself ends abruptly in a perpendicular line extending from the top of the bulwarks to the keel, giving (to us) the impression of a demi-ship. Like *Argô* it has a single mast (As to *Argô*, vide R. B. Jr., *E.* sec. v.). As Canon Rawlinson observes, the later As. boats and galleys were modelled on those of the Phoenicians, but apparently without masts and sails, probably on account of the 'extreme rapidity of the Mesopotamian rivers, on which sailing boats are still uncommon.' Being used only for peaceful purposes they were not armed with beaks or otherwise. In later ages when the types of naval architecture had altered, and when the prow, as well as the stern, frequently rose high in a χηνίσκος or other termination, the archaic type was not unnaturally considered to represent an actual demi-ship, a form which harmonized with other constellation-figures, such as the *Bull* and the *Horse*. This is shown in the description of Star No. 32 of the List, which is at the 'severance,' 'cutting of,' or 'segment' (*'αποτομή*) of the deck (Vide No. 40; R. B. Jr., *O. N. C.* p. 21). A coin of Tzur (Gesen. *Tab.* xxxiv. N.) shows the Argô-type very exactly, and even [illegible]lose inspection it might be thought that [illegible]mi-ship was represented. Such, then, is the reason of the constellational form of *Argô*, which Theôn styles Hêmitomos ('Cut-in-two'). The Latin writers equally note that *Argô* was a demi-ship (Schol. Germ. p. 97, ap. Robert, *Eratosth. Catas. Reliq.* p. 174; Hyginus, *Poet. Astron.* ii. 37). Proctor acutely remarks, 'It is noteworthy that when we make due correction for the effects of precession during the past four thousand years, the old constellation Argo is set on an even keel, instead of being tilted some 45° to the horizon as at present when due south.' Proctor connected *Argô* with Noah's Ark, and it is not improbable that it represented the huge Ship of the Euphratean Deluge Story. As yet only a very small portion of the archaic astronomical records of the Euphratês Valley have been examined; and, as of course, many star- and constellation-names which may yet be brought to light, are unknown to us. We must not, therefore, at present expect to find the Euphratean originals of all our Signs and star-names. Still very much has been accomplished in this direction; and, as regards *Argô*, we find in *W. A. I.* III. lxix. 65 'the god *Maganda-anna*' ('Ship-of-the-Canal-of-heaven'). Various stars and constellations are often styled 'gods' in the Tablets, the god So-and-so frequently appearing in a stellar reduplication, or as in themselves possessing divine power, like the thirty stellar *βουλαίους θεούς* of Diodôros (Vide R.B.Jr., *E.* sec. xxvii.); *Magunda* is almost certainly a star-god, and the 'Canal' is the *Via Lactea* (Vide *inf.* p. 105) on which the mighty *Argô* sails.

An Egyptian poet of the reign of Tehutimes III., hymns the star Karbana, the Karbanit of Assurbanipal, Gk. Kanôbos, Lat. Canôpus,

> 'Which pours his light in a glance of fire
> When he disperses the morning dew'
> (Ap. Brugsch, *Eg. under the Pharaohs*, i. 371).

The Schol. Arat. 351 says, *φαίνεται δὲ πρôτον 'απὸ 'Ρὸδου τοῖς 'επ' Αἴγυπτον πλέουσιν.* It could be just seen on the southern horizon by the astronomers of Tzur, B.C. 1200; and, being thus so near the earth, was also called by the Greeks *περίγειος*, by the Latins *terrestris*, and by the Arabs *Suhail* ('the Ground'-star). I will not refer here to the world-wide myth of the solar hero and his ship, boat, barge, cup, etc. with which *Argô Navis* is connected.

VIII.—'THE CONSTELLATION OF THE *Water-snake*.

1. Of the five in the head the southern-one of the foremost two at the nostrils—σ (4).
2. The more-northerly of them and above the eye—δ (4).
3. The northern of the two behind these, as at the head—ϵ (4).
4. The more-southerly-one of them and at the yawning-mouth —η (4).
5. The one behind all, as at the side of the face—ζ (4).
6. The foremost of the two in the outgrowth of the neck—ω (5).
7. The hindmost of them—θ (4).
8. The middle-one of the three in a row in the bend of the neck—τ^2 (4).
9. The hindmost of the three—ι (4).
10. The most-southerly of them—τ^1 (4).
11. The dim and northern-one of the two together towards the south—A (6).
12. The bright-one of the two together—α (2).

13. The foremost of the three following-ones after the bend—κ (4).
14. The middle-one of them—υ^1 (4).
15. The hindmost of the three—λ (4).
16. The foremost of the three in a row, as in a straight line—μ (3).
17. The middle-one of them—ϕ^3 (4).
18. The hindmost of the three—ν (3).
19. The northern-one of the two at the bottom of the *Bowl*—β (4).
20. The more-southerly-one of them—χ^1 (4).
21. The foremost of the three after these, as in a triangle—ξ (4).
22. The middle and more-southerly-one of them—o (4).
23. The hindmost of the three—β (3).
24. The one after the *Crow* in the tail—γ (4).
25. The one at the end of the tail—π (4).

Twenty-five stars in all, whereof one (is) of the 2nd magnitude, three of the 3rd, nineteen of the 4th, one of the 5th, one of the 6th.

The Unformed-stars around the Water-snake.

1. The one south of the head—1 (3).
2. The one behind those in the neck after an interval—15 *Sextantis ?* (3).

Two stars in all, of the 3rd magnitude.'

Note.

Hydra is a variant reduplication of the *Cetus*-concept, the Storm-and-ocean-monster; and is attacked by the Sun-god (Vide Cylinder showing 'Merodach attacking the Serpent,' Smith and Sayce, *Chal. Account of Gen.* p. 90). In this aspect it is referred to in an archaic Ak. Hymn which speaks of 'the monstrous snake' that 'bears the yoke on its seven heads . . the strong serpent of the sea' (*W. A. I.* II. xix. No. 2, ll. 7, 8, ap. Sayce). The quick-flowing rivers seem to have been compared by the Akkadai with the swift gliding of a huge glistening serpent, and so we arrive at the idea of the (Ak.) *Hid tsirra* (*W. A. I.* II. li. 45, 'River of the Snake') which, as Prof. Sayce notes (*Rel. Anct. Babs.* p. 116), developes into an Ôkeanos-stream, like the Norse Great Serpent, the Midhgardhsomr ('the Serpent of Midgard,' = Middle-garth, = the Earth), the Weltum-spanner ('Stretcher-round-the-World'). This Ocean-snake-stream is also likened to a Cord, and then becomes 'the River of the Cord of the great god' (*W. A. I.* II. li. 46), and 'the River of the great Abyss' (Ak. *Hid Zuab-gal*, As. *Nahru Apsi rabi*, *Ib.* 47). But, next, this oceanic Snake-river becomes connected with a famous stream of the Upper Deep, the *Via Lactea;* and so we read 'River of the Shepherd's hut, dust-cloud high' (*W. A. I.* II. li. 48-9). The 'Shepherd' is the luckless Sun-god, Duwu-zi, elsewhere (*Ib.* IV. xxvii. No. 1) called 'the Lord of the Shepherd's Mound,' *i.e.*, the *tel* (hill) of heaven. This Snake-river of sparkling dust, the stream of the abyss on high through which it runs, connected alike with the hill of the Sun-god and with the passage of ghosts, is the Milky Way. 'Dust-cloud' (Ak. *kit*, Altaic *kut*, 'ghost,' Anc. Chinese *kut*, Mod. Chi. *kuei*, 'cloud-like,' hence 'ghost.' '*Kwei*, a name of ill-omen applied to the names of the departed.' Kingsmill. Vide R. B. Jr., *E. S. R.* v. 23), As. *Zakiku*, also signifies 'ghost,' a phantom being so imagined. The *Via Lactea* has elsewhere been styled 'the Path of Spirits,' 'the Road of Souls,' etc. As I have shown (Vide *Academy*, Jan. 9, 1892, p. 43), the Great Serpent of the two circular uranographic Stones depicted in *W. A. I.* III. xlv. respectively represents the *Galaxias* in May and in November.

The seven-headed Euphratean Hydra is also a variant phase of the seven Evil Spirits (Vide *sup.*

p. 90) who are allies of Tiâmat; and in late times the Monster appears as the 'Hydra Septiceps' of Aldrovandus (*Serpentum et Draconum Historia*, 1640, p. 386). Heads grow rapid[illegible]l by the time the creature has reached the [illegible] of Lernê, we find it with nine heads, or, according to some, with a hundred. Thus Vergil, 'Lernaeus turbâ capitum circumstetit anguis' (*Aen.* viii. 300). The contest between Hêraklês and the Hydra assisted by the Crab, and its commemoration in this part of the heavens will be subsequently referred to (Vide *inf.* p. 145). The *Hydra* of Aratos has several heads (*Phainom.* 697). A Euphratean Boundary-stone (Vide R. B. Jr., *Z.* Fig. xi. p. 13) shows *Hydra* and *Scorpio* side by side (For further reference to *Hydra*, vide R. B. Jr., *E.* sec. vii.). The *Kakkab Tsir* ('Constellation of the *Snake*,' *W. A. I.* II. xlix. 12; III. lvii. 52) is the *Caput Hydrae*.

IX.—'The Constellation of the *Bowl*.

1. The one in the bottom of the *Bowl*, common to the *Water-snake*—α (4).
2. The more-southerly of the two in the middle of the *Bowl*—γ (4).
3. The more-northerly of them—δ (4).
4. The one at the southern part of the circumference of the mouth—ζ (4).
5. The one at the northern part of the circumference—ε (4).
6. The one at the southern handle—η (4).
7. The one at the northern handle—θ (4).

Seven stars in all, of the 4th magnitude.'

Note.

The stars in the above figure exactly form a Bakchic κάνθαρος, with its two handles rising above the two extremities of the circumference; and the circumstance reminds us that one Greek legend connected *Krêtêr* ('the Mixing-bowl') with the Cup of Ikarios to whom Bakchos gave the vine, and who was translated to the skies as *Boötês* (Vide *inf.* p. 284). But the original connexion of both *Crater* and *Corvus* is with *Hydra*, the Storm-and-ocean-monster. This appears in the legend that *Crater* 'dolium esse quo Mars [Arês] ab Otho [Ôtos] et Ephialte sit coniectus' (Hyginus, *Poet. Astron.* ii. 40). Whatever may be the exact meaning of this very ancient and singular myth, the binding of Arês for 'thirteen months [= the year + the intercalary month] in a vessel of bronze' (*Il.* v. 385-7; R. B. Jr., *E.* p. 19), it seems clear that the huge jar (*dolium.* Cf. the colossal jars found by Schliemann at Troy, *Troy and its Remains*, Pl. xi. B) is a symbol of the vault of heaven wherein at times storm, wind, clouds, rain are chaotically mixed. Another legend, located in Asia Minor, connected *Crater* with the mixing of human blood with wine in a bowl (Hyginus, *Poet. Astron.* ii. 40). This is a step towards the kosmogonic creation-myths recorded by Bêrôsos (*Chal.* i. 5, 6), in which a woman is cut asunder in order to form heaven and earth, or the blood from a beheaded divinity mixed with earth forms men and animals. In a trilingual List (*W. A. I.* II. xxii. 29) the Ak. *Lut Tsir-na* is explained by the Sem. *Karpat Tsiri* ('Bowl of the Snake'). There is no express mention made of star or constellation, but if this title does not denote these two constellations I am ignorant what its meaning can possibly be.

X.—'THE CONSTELLATION OF THE *Crow*.

1. The one in the beak, also common to the *Water-snake*— α (3).
2. The one in the neck towards the head—ϵ (3).

3. The one in the breast—ζ (5).
4. The one in the foremost and right wing—γ (3).
5. The foremost of the two in the hindmost wing—δ (3).
6. The hindmost of them—η (4).
7. The one at the end of the foot, common to the *Water-snake* —β (3).

Seven stars in all, whereof five (are) of the 3rd magnitude, one of the 4th, one of the 5th.'

Note.

Tiâmat-Cetus (Vide *sup.* p. 89) is also 'the Serpent of night,' 'the Serpent of darkness,' 'the Wicked-serpent,' and 'the mightily strong Serpent,' 'epithets which show that it was on the one hand the embodiment of moral evil, and on the other was primitively nothing more than the darkness destroyed by the sun' (Smith and Sayce, *Chal. Ac. Gen.* p. 88); and on a Creation-legend Tablet from Guduaki (Cutha) we read (ap. *Ib.* p. 93):—

> 'Warriors with the bodies of birds of the desert, men
> With the faces of ravens,
> These the great gods created,
> Tiamtu gave them suck.'

We therefore notice the connexion between Tiâmat and the Demon-ravens; and the eighteenth lunar Mansion (*W. A. I.* V. xlvi. No. 1, l. 20), whose stars are *α, β, γ, δ, ε Corvi*, has for its patron-divinity the god (Ak.) Im-dugud-khu ('the Great Storm-bird'), Sem. *Ramânu-ikabbid* (Raman-is-terrible), Raman being the Storm-god. Elsewhere (*W. A. I.* III. liii. No. 1, ll. 26-7) this god Im-dugud-khu is called 'the constellation of the Storm-bird,' and we read 'that constellation for mist and tempest is.' From this and similar passages we observe that a god often = a star or constellation; and, conversely, a star or constellation is frequently also a god. We further notice the close connexion between the Storm-raven and the Storm-and-darkness Serpent. Aratos (*Phainom.* 449) says that the '*Crow's* form seems to peck the fold' of the *Water-snake*. This is appropriate, as Tiâmat gave the brood of Crows suck. Frequent mention is made in the Tablets of a *kakkab Ugaga* ('Star of the *Raven*'), but Jensen (who calls it *Unagga*) has given various reasons for supposing that it refers to a comet (Vide *Kosmologie*, p. 153), which perhaps was a manifestation regarded as belonging to the Tiâmat-order.

XI.—'THE CONSTELLATION OF THE *Centaur*.

1. The most-southerly of the four in the head—2 (5).
2. The more-northerly-one of them—4 (5).
3. The foremost of the two remaining and middle-ones—1 (4).
4. The hindmost of them and the remaining-one of the four —3 (5).
5. The one at the left and foremost shoulder—ι (3).
6. The one at the right shoulder—θ (3).
7. The one at the left shoulder-blade—ψ (4).
8. The more-northerly of the foremost two of the four in the thyrsus—l (4).
9. The more-southerly of them—o (4).
10. Of the remaining two, the one at the end of the thyrsus —π (4).
11. The remaining-one and more-southerly than this—ρ (4).
12. The foremost of the three in the right side—τ (4).
13. The middle-one of them—υ (4).
14. The hindmost of the three—ϕ (4).
15. The one at the right arm—m (4).
16. The one at the right wrist—κ (3).
17. The one at the end of the right hand—σ (4).
18. The bright-one in the outgrowth of the human body—λ (3).
19. The hindmost of the two dim-ones more-northerly than this n (5).
20. The foremost-one of them—χ (5).
21. The one at the outgrowth of the back—ω (5).
22. The one in front of this at the back of the horse—o (5).

23. The hindmost of the three at the loins—μ (3).
24. The middle-one of them—c (4).
25. The foremost of the three—p (5).
26. The foremost of the two together at the right thigh—β (3).
27. The hindmost of them—e (4).
28. The one in the breast under the armpit (μασχάλην) of the horse—Lac. 1155 (4).
29. The foremost of the two under the belly—? (2).
30. The hindmost of them—? (3).
31. The one at the bend of the right foot—ν (2).
32. The one in the ankle of the same foot—ξ (2).
33. The one under the bend of the left foot—f (2).
34. The one at the frog (βατραχίου) of the same foot—ζ (4).
35. The one at the end of the right forefoot—α (1).
36. The one at the knee of the left foot—γ (2).
37. The one outside under the right hindfoot—ε (4).

Thirty-seven stars in all, whereof one (is) of the 1st magnitude, five of the 2nd, seven of the 3rd, sixteen of the 4th, eight of the 5th.'

Note.

The constellation *Centaurus*, a variant of *Sagittarius*, was connected in Greek mythic legend with the wise Cheirôn, who taught mankind 'the figures of Olympos' (Vide *inf.* p. 124). The *Katas.* calls this Sign Χείρων, and the Schol. Arat. and Schol. German. agree. In *E. S. R.* Part iv., to which I would refer the reader, I had occasion to consider the constellation at length in connexion with Tablet *W. A. I.* III. lvii. No. 5, where it is described under the name of (Ak.) Gud-elim ('The Bull-of-Bêl,' or 'the Horned-bull,' *i.e.*, Bull with huge horns). I there also gave two illustrations from engraved gems of Western Asia of Gud-elim holding up Ur-bat or Lig-bat ('the Beast-of-death') = *Centaurus* holding *Lupus* (Vide Lajard, *Culte de Mithra*, Pl. lxviii. 19, 20); and showed, from the description of Aratos, that the figure of the archaic Gk. constellational *Centaur* was, in all probability, not that of the ordinary Classical type, but represented a creature whose forelegs and feet were those of a man. This is the type on one of the gems referred to, which shows a horned and winged Man-horse, kneeling on one knee; and it was also the type of Cheirôn on the famous Coffer of Kypselos (Paus. V. xix. 2; Vide *inf.* p. 213). The wise centaur Cheirôn, who sprung from Kronos and a daughter of Ôkeanos, is a western reduplication of the wise unanthropomorphic Êa-bani ('Êa-made-me'), the friend of the hero Gilgames, who is always represented as a kind of man-bull, and who 'was believed to have originally ascended out of the abysses of the sea' (Smith and Sayce, *Chal. Ac. Gen.* p. 205). In the above Tablet stars of the 'right' and 'left' hands and of the 'left foot' of Gud-elim are referred to.

XII.—'THE CONSTELLATION OF THE *Wild-beast.*

1. The one at the end of the forefoot near the hand of the *Centaur*—o (3).
2. The one at the bend of the same foot—α (3).
3. The foremost of the two over the shoulder-blade—ζ (4).
4. The hindmost of them—η (4).
5. The one in the middle of the body of the *Wild-beast*—θ (4).
6. The one in the belly under the flank—π (5).
7. The one at the thigh—β (5).
8. The most-northerly of the two at the outgrowth of the thigh —ξ (5).
9. The more-southerly-one of them—ρ (5).
10. The one at the end of the loins—ς (5).
11. The southern-one of the three at the end of the tail—τ (5).
12. The middle-one of the three—ι (4).
13. The more-northerly-one of them—κ (4).
14. The more-southerly of the two in the neck—ν (4).
15. The more-northerly one of them—μ (4).
16. The foremost of the two in the muzzle—γ (4).
17. The hindmost of them—λ (4).
18. The most-southerly of the two in the forefoot—ε (4).
19. The more-northerly-one of them—δ (4).

Nineteen stars in all, whereof two (are) of the 3rd magnitude, eleven of the 4th, six of the 5th.'

Note.

The *Kakkab Lig-bat* (Vide *sup.* p. 110) appears on the famous Section of the Euphratean Planisphere discovered by Geo. Smith 'in the palace of Sennacherib' (Vide *As. Discoveries*, 1875, pp. 407-8). It is placed in the Outer or Southern Circle of the Planisphere, and below the *Scorpion* (Vide Bezold, *Cat.* iv. 1385). According to the arrangement of Aratos, the *Thêrion* is included in the *Centaur* (Vide *sup.* p. 11); and in the West it ultimately became *Lupus*, the largest common wild-beast, and also a type of Darkness, for the *Ligbat* is one of the Demon-animals overcome by the Sun-god or other Light-power. It appears to be figured on the monuments (Vide *W. A. I.* III. xlv. 'Emblems on Black Stones from Babylon'). Apropos of monsters and combinations of animal-forms, Bêrôsos, when speaking of the primeval Darkness and Chaos, the mythical and mystical Scorpion-and-dragon period, says:—'Other human figures were to be seen with the legs and horns of goats [= Satyrs]; some had horses' feet, whilst others united the hind quarters of a horse with the body of a man [= the archaic *Centaurus*-type]. Bulls likewise were bred then with the heads of men; and dogs, with fourfold bodies, terminated in their extremities with the tails of fishes [Cf. the *Capricorn*-type]. In short, there were creatures in which were combined the limbs of every species of animals. Of all which were preserved delineations in the temple of Bêlos' (*Chal.* i. 4).

XIII.—'THE CONSTELLATION OF THE *Censer*.

1. The more-northerly of the two in the base—γ (5).

2. The more-southerly-one of them—ϵ (4).
3. The one in the midst of the *Little-altar*—δ (4).
4. The northern of the three on the altar-hearth—α (5).
5. The more-southerly of the two remaining and together—β (4).
6. The more-northerly-one of them—η (4).
7. The one at the end of the flame—θ (4).

Seven stars in all, whereof five (are) of the 4th magnitude, two of the 5th.'

Note.

As to this important little constellation the *Altar* or *Censer*, vide *sup.* p. 67 ; *inf.* pp. 180, 216-18.

XIV.—'THE CONSTELLATION OF THE *Southern Crown.*

1. The foremost outside the southern circumference—α (4).
2. The hindmost of them at the *Crown*—ϵ (5).
3. The one behind this—ζ (5).
4. The one besides behind this—β (4).
5. The one after this in front of the hip-joint of the *Archer*—η (5).
6. The one after this and more-northerly than the bright-one in the knee (of the *Archer*)—θ (4).
7. The one more-northerly than this—γ (4).
8. The one besides more-northerly than this—δ (4).
9. The hindmost of the two preceding-ones near this one, in the northern circumference—μ (6).
10. The foremost of the two dim-ones—ν (6).
11. The one before this at some distance—ι (5).
12. The one besides before this—κ (5).
13. The remaining and more-southerly-one of the aforesaid—λ (5).

Thirteen stars in all, whereof five (are) of the 4th magnitude, six of the 5th, two of the 6th.'

Note.

The *Stephanos Notios* is noticed by Aratos, but even in his day it had not yet received this name:—

> 'Other few
> Below the *Archer* under his forefeet,
> Led round in circle roll without a name' (*H. D.* 399-401).

Here is the germ of the name *Crown*, which illustrates how strong is the principle of reduplication even in late times, the Sign being merely a reduplication of the *Northern Crown*. So, ages later, *Leo Min.* was put over the back of *Leo*. I would call attention to the fact, that the *Sagittarius* of Aratos evidently resembled the Euphratean type, and not the ordinary classical and modern type of the constellation-figure, in the position of his forelegs or leg, which were over the *Corolla*, instead of being immediately behind it, as *e.g.*, on the Farnese Globe. This is one of the innumerable interesting indications that Aratos had before him constellation-figures whose prototypes belonged to Western Asia. Flamsteed (*Atlas Coelestis*, 1729) places the *Corona Australis* between the two forelegs of the *Archer*. Proctor, improperly, places the two forelegs in the middle of the *Crown*.

XV.—'THE CONSTELLATION OF THE *Southern Fish*.

1. The one in the mouth, the same as at the beginning of the *Water*—α (1).
2. The foremost of the three at the southern circumference of the head—β (4).
3. The middle-one of them—γ (4).
4. The hindmost of the three—δ (4).
5. The one at the fin—ε (4).
6. The one at the southern spine of the back—μ (5).
7. The hindmost of the two in the belly—ζ (5).
8. The foremost of them—λ (4).
9. The hindmost of the three at the northern spine—η (4).
10. The middle-one of them—θ (4).
11. The foremost of the three—ι (4).
12. The one at the end of the tail—κ (4).

12 stars in all, whereof one (is) of the 1st magnitude, nine of the 4th, two of the 5th.

The Unformed-stars around the Southern Fish.

1. The foremost of the bright-ones in front of the *Fish*—α *Microscop.* (3).
2. The middle-one of them—1 (3).
3. The hindmost of the three—2 (3).
4. The dim-one in front of this—β *Microscop.* (5).

5. The more-southerly of the two remaining-ones—6 (4).
6. The northern-one of them—4 (4).

Six stars in all, whereof three (are) of the 3rd magnitude, two of the 4th, one of the 5th.'

Note.

Ktêsias of Knidos, the famous physician, who is said to have returned to his home in B.C. 398, and the loss of whose works on Persia and Assyria is so much to be regretted, related that the *Piscis Australis*, the 'Great Fish,' as it was called, was first in a lake at Bambŷkê (= Hierâpolis), the modern Membij, called in the treatise *On the Syrian Goddess*, Hirê ('the Sacred'), and which was not far from the ancient Hittite capital Gargamis (Eg. Qirqamisha, Sem. Karkhemish), to the importance, religious and otherwise, of which it succeeded. In this lake the Fish was said to have saved the life of Derketô (Vide *inf.* p. 224) daughter of Aphrodîtê; and a reduplication of this idea represented it as having also saved Isis. It was akin to the zodiacal *Fishes* (Vide *Kastas.* xxxviii.; Schol. Arat. *Phainom.* 239; Schol. German. in loc.; Hêgêsias, ap. Hyginus, *Poet. Astron.* ii. 41). Similarly, Diogenîtês Erithrâkos (ap. Hyginus, *Ib.* 30) related that Venus and Cupid having come to the river Euphratês and being alarmed at the sudden appearance of the giant Typhôn, threw themselves into the water, 'et ibi figuram piscium forma mutasse.' So Manilius:—

> 'Scilicet in piscem sese Cytherea novavit,
> Cum Babyloniacas submersa profugit in undas'
> (*Astronomicon*, iv. 580-1).

Here, as ever, really early Greek legend connects the Signs with Western Asia. At Bambŷkê fishes were regarded as sacred (*Peri tês Sy. The.* xiv.). Êa, the primitive Fish-god of Eridu ('the Holy-city,'

= the original Hierâpolis), once actually on the shores of the *Tihamtu saplitu sa Tsit-samsi* ('the Lower Sea of the Rising-sun,' = the Persian Gulf), and his solar son Marduk, as Kha-Êa ('the Fish-of-Êa'), with the Semitic consorts subsequently bestowed upon them, in accordance with the Semitic idea of male and female divine couples, are the true source of the other piscine divinities of Western Asia, and of constellational reduplications of a Fish. The thirtieth lunar asterism is *Gusirabba* ('the Yoke of the Sea') = Sem. *Nabu-tamti* ('the Proclamation of the Sea') = ζ, σ, π *Sag*. These stars form a 'yoke' thrown across the ecliptic near the shore of the great celestial sea (Vide *sup.* p. 84) which extends thence to the *Ram*. In *W. A. I.* V. xlvi. No. 1, Rev. l. 1 *Gusirabba* is identified with the *Kakkab Nun-ki*, pronounced *Nun-pê* (*Tab.* 82-8-16, i. Ob. l. 21), 'the Lordly-city' (= Eridu). The asterism located on the margin of the heavenly sea was thus the appropriate patron of the city which stood on the margin of the earthly sea; and in *W. A. I.* III. lvii. No. 4, Rev. 1 we read :—

1. *Kakkab Dil-bat ana kakkab Tamti dikhu.*
   'The-constellation *Venus* to the-asterism of the *Sea* (is) opposite.
2. The-constellation *Venus* to the-constellation of the *Fish* (is) opposite.
3. The-constellation *Venus* to the-constellation of the *Goat-fish* (is) opposite.'

In this case the *Fish* appears to be the *Piscis Australis*. In *Tab.* 81-7-27, 94 (Bezold, *Cat.* iv. 1803), which is one of the three surviving Fragments of the Euphratean Planisphere, we find the constellation (Ak.) *Sila-da-kha-bi* ('The Fish-of-the-Canal') as the Sign of the Outer or Southern Circle of the eleventh month *Idu As-a-an* ('The Month-of-the Curse-of-rain') whose zodiacal Sign is the *Water-pourer*. The 'canal' is, of course, the stream from the Urn of *Aquarius*, the *Water* (*Sup.* p. 87), which enters the mouth of the 'Great Fish' at the bright star *Fomalhaut* (=Ar. *Famm-al-Hût*, 'Mouth-of-the-Fish').

Dupuis concludes his very learned account of the heavenly Signs, 'Nous terminons ici [*i.e.*, at the *Southern Fish*] l'énumération des Constellations connues des anciens, et dont l'origine se perd dans la nuit des temps.' He had done what he could, and had enough of refined common sense not to give baseless theories of the origin of the Figures of the heavenly Olympos, but to perceive that the facts were concealed by a veil then impenetrable. Thanks to modern scientific research, the veil can now be taken away. The Catalogue concludes:—

> 'The stars at the southern part (of the Sphere are) 316 in all, whereof 7 (are) of the 1st magnitude, 18 of the 2nd, 63 of the 3rd, 164 of the 4th, 54 of the 5th, 9 of the 6th, 1 nebulous.
>
> And the stars at the Northern Hemisphere are 360 in all.
>
> And together the fixed stars (are) 1022 in all, whereof 15 (are) of the 1st magnitude, 45 of the 2nd, 208 of the 3rd, 474 of the 4th, 217 of the 5th, 49 of the 6th, 9 dim, 5 nebulous, and the *Tress*.'

Such, then, is the famous Hipparcho-Ptolemy Star-list. It is as truly remarkable in a historical and archaeological connexion as astronomically. No one now will suppose that Hipparchos sat down, commenced a series of stellar observations, and ultimately himself compiled the entire List. Such great achievements are more gradual; they represent the outcome and result of centuries of slowly maturing thought and patient observation. As the constellation-figures belonged to Western Asia, so was it the birthplace of those ancient star-lists upon which this is founded. There was no difficulty in the matter of intercommunication. A cloud of witnesses testify to the connexion between the wisdom of the East and the earlier sages of Hellas. The treasures of the library of Alexandria, the lore and writings of such Chaldaean sages as Kidên, Naburianos and Soudinos (Vide Strabo, XVI. i. 6), were at the service of Hipparchos; and the cuneiform script itself continued to be employed down to the commencement of the Christian era, whilst various Orientals, of whom Bêrôsos is a familiar example, busied themselves in the translation of the wisdom of the Chaldaeans into the all-pervading language of Alexander and his successors. These external facts, upon which scarcely sufficient stress has been laid, are naturally duly corroborated by the internal evidence, viz., by a comparative examination of the astronomical and astrological writings of Hellas with those of Western Asia. This important circumstance will be fully appreciated by the careful reader of the foregoing notes on the several constellations. As a remarkable illustrative instance I may mention that M. Oppert has demonstrated that a passage in the *Almagest* (v. 14) is actually a translation of a cuneiform Tablet (No. 400, Strassmaier) of the seventh year of Ḳambujiya (Kambysês) II., B.C. 523-2. I do not further refer to these matters at the present stage of the enquiry; but I may mention that in *H. D.* the reader will find illustrations from Babylonian originals of the constellations of the *Archer*, *Scorpion*, *Goat*, *Dog*, *Bull*, *Water-snake*, *Crow*, *Horse*, and *Claws* (Vide also *sup.* p. 68). Before journeying eastward we must first trace backwards the history of the constellation-figures in regions Hellenic; and will next pursue the investigation throughout the period from Eudoxos to Hêsiod.

Note.—Map of the Northern Hemisphere as viewed from Phoenicia (Tyre), B.C. 1200.

The constellations and stars as shown are :—

Dûb (the *Little Bear*).
Dub Kabîr (the *Great Bear*).
Nâkhâsch (the *Serpent*).
Kêph (= '*Kêpheus*').
Bouqer (the *Herdsman*), with the star *Aish* (the *Bearward*).
Naizer (the *Northern Crown*).
Harekhal (= '*Hêraklês*,' the *Kneeler*).
Kinnôr (the *Lyre*).
Tsippûr (the *Bird*).
Qassiu-peaêr (= '*Kassiepeia*').
Barsav (= '*Perseus*').
Rakkov (the *Charioteer*), with the star *Aiz* (the *Goat*).
Eschmûn (the *Snake-holder*).
Khaits (the *Arrow*).
Nesher (the *Eagle*).
Nakhîr (the *Dolphin*).
Pegah-sûs (the *Horse*).
Adâmâth (= '*Andromeda*').
Sholêsh (the *Triangle*).
Teleh (the *Ram*).
Aleph (the *Bull*), with the star-cluster *Kimah* (the *Pleiad*).
Thomîm (the *Twins*).
Sertan (the *Crab*).
Layish (the *Lion*), with the star *Melekh* (the *King* = *Regulus*).
Erek-hayîm (= '*Êrigonê*,' the *Virgin*), with the star *Zera* (the *Ear-of-corn* = *Spica*).
Perosûth (the *Claws*—of the *Scorpion*), holding the circular *Altar* (*Sup.* p. 69).
Aqrab (the *Scorpion*).
Kesîl (the '*Strong*' = *Ôrîôn*).
Nâkhâsch Maîm ('the Snake of the Waters' = *Hydra*).
Asoûr (the *Bowl.* Vide Hêsych. in voc.).
Ouraib (the *Crow*).
Keleb Maîm ('the Dog of the Waters' = *Procyon*).

CHAPTER IV.

The Constellations in Greek Literature from Eudoxos to Hêsiod.

We learn from Ptolemy that cir. B.C. 283 two Greek astronomers Aristillos and Timocharis made a catalogue of eighteen of the principal stars with their declinations. The circumstance shows the activity with which astronomical studies were pursued in Hellas at this period, *i.e.*, about thirteen years before the composition of the *Phainomena* of Aratos; but, as the labours of these two observers, who probably formed part of a far more numerous company of students, belong rather to the subject of astronomy proper, I pass on to Eudoxos of Knidos, a city on the Karian coast. For, it is to be observed, that the early Greek sages who are connected with astronomical lore nearly all belonged to Asiatic Hellas and the islands adjacent, an instructive and highly significant circumstance. Thus amongst them we find Pythagoras of Samos, Kleostratos of Tenedos, Oinopidês of Chios, and Thalês, Anaximandros, and Aristagoras of Milêtos. The early pioneers of science are deservedly respected, since nothing is so difficult as the beginning; and the performances of Endoxos, although comparatively feeble, were relatively great. He lived cir. B.C. 403-350, and his astronomical works, amongst which were the *Phainomena* ('Heavenly Display') and the *Enoptron* ('Mirror'), are lost, except so far as they have been preserved in the *Phainomena* of Aratos, and in the *Exêgêsis* ('Commentary') of Hipparchos upon the combined *Phainomena* of the two earlier writers. It is sad also to think that all the other works of Hipparchos himself, the greatest astronomer of antiquity, have likewise perished. Cicero, in an interesting passage, states that 'Gallus assured us [that the] solid and compact [model] globe was a very ancient invention, and that the first [Hellenic] model had been originally made by Thales of Miletus,' who lived cir. B.C. 636-546, and was renowned, amongst other things, for having fallen into a well whilst star-gazing (Vide Platôn, *Theaitêtos*, lxxix.). 'That afterwards Eudoxus of Cnidus, a disciple of Plato, had traced on its surface the stars that appear in the sky, and that many years subsequently, borrowing from Eudoxus this beautiful design and representation, Aratus had illustrated it in his verses, not by any science of astronomy, but by the ornament of poetic description' (*De Republicâ*, i. 14). Aratos, then, had before him the two prose works of Eudoxos above mentioned, one or more star-maps with constellation-figures, and a globe; and from these materials, and not from any astronomical observations of his own, he constructed his poem. And here I may observe, that many differences in the description of constellation-figures which appear to be contradictory, are not really so, inasmuch as they originate, in most cases, from the circumstance that in one instance the figure is taken from a star-map, in which case the stars appear as we see them from the earth; whilst in another the figures may be taken from a globe, in which case the stellar positions are reversed, inasmuch as the earth, the standpoint of the spectator, is supposed to be at the centre of the globe, whilst actually we look at the globe from the outside. Eudoxos summarized the astronomical observations of previous times and of his own era; and it appears, alike from the *Phainomena* of Aratos and from the *Exêgêsis* of Hipparchos, that, in his day, the names of the primitive Greek constellations were the same as at present. Sir G. C. Lewis observes that the method of Eudoxos 'was to conceive the starry heaven as distributed into constellations, with recognized names, and to define them partly by their juxtaposition, partly by their relation to the zodiac, and to the tropical and arctic circles . . . He gave a sort of geographical description of their territorial position and limits, according to groups distinguished by a common name. The constellations had been named before the time of Eudoxus' (*Astron. of the Ancients*, p. 149). Therefore, we observe that, beyond all question, our familiar constellation-names existed amongst the Greeks in the fifth century B.C. Thus we are at once delivered from the baseless theory that Alexandrian poets and grammarians were in the habit of inventing constellation-figures at their own sweet will, and then tacking on to them any particular myths and legends which might seem appropriate.

Platôn, the master of Eudoxos, after having spoken of sun, moon, 'and five other stars which are called the planets,' and having described 'the fixed stars' as 'divine and eternal animals, ever abiding and revolving after the same manner and on the same spot,' observes :—'Vain would be the labour of telling about all the figures of them moving as in dance . . . to attempt to tell of all this without looking at the models of them would be labour in vain' (Ap. Jowett, *The Dialogues of Plato*, iii. 622-3). From which very interesting passage we learn three things, (1) That he was acquainted with the figures of the stars, *i.e.*, the constellation-figures; (2) That their motion was regarded as a mighty kosmic dance, a view often brought before us by the Tragedians, and which has an important connexion with actual ritual; and (3) That there were in his time models of the constellation-figures, *i.e.*, globes and spheres. Thus, according to Diogenês Laertios, Anaximandros, B.C. 610-547, the immediate philosophical successor of Thalês, 'was the first person [he knew of] who drew a map of the earth and sea, and he also made a globe' (*Peri Biôn*, ii. 3). In statements of this kind by Classical writers the introducer, or the popularizer, is constantly described as the inventor. So Diogenês, in the same passage, says that Anaximandros 'was the first discoverer of the gnomon; and he placed some in Lakedaimôn on the sun-dials there, and they showed the solstices and the equinoxes.' But, as a matter of fact, Anaximandros was not 'the first discoverer of the gnomon'; for, as Hêrodotos (ii. 109) truly says, 'The gnomon with the division of the day into twelve parts, was received by the Greeks from the Babylonians.' From an early period the Asiatic Hellenes had been familiar with maps and other representations uranographic and geographic. Thus, Hêrodotos (v. 49) states that Aristagoras produced to Kleomenês of Sparta 'a bronze tablet, whereupon the whole circuit of the earth was engraved, with all its seas and rivers.'

Before proceeding to consider the constellations as they appear in the 'tragic triad of immortal fames,' we may notice several other statements in this connexion. Oinopidês, cir. B.C. 500-430, was said by some to have 'discovered' the Zodiac, *i.e.*, the obliquity of the sun's course; whilst others stated that this knowledge he 'derived from Egypt.' The first statement is historically ridiculous, the second quite possible; but the meaning of the apparently absurd assertion is that Oinopidês doubtless taught, and perhaps wrote on, this scientific fact, the discovery of which Pliny, with equal want of wisdom, attributes to Anaximandros. Unfortunately the *Astrologikê Historia* of Eudêmos, the disciple of Aristotle, is lost, or we should have known much more upon all these matters. As to the Zodiac, Pliny gravely informs us that 'Signa in eo Cleostratus [who 'lived some time between B.C. 548 and 432'] et prima Arietis ac Sagittarii' (*Hist. Nat.* ii. 6). He might as well have stated that So-and-So put the letters in the alphabet; but, doubtless Kleostratos was a popularizer of the Babylonian Zodiac, which, with its famous Twelve Signs, has been adopted by nearly all the world. A far more important assertion, when rightly understood, and one which was literally received by Sir Isaac Newton, is made by Clement of Alexandria, who says:—'Hermippos of Berytos [cir. A.D. 100] calls Cheirôn the Centaur wise; about whom he that wrote *The Battle of the Titans* [Probably either Arktînos, cir. B.C. 776, or Eumêlos of Korinthos, cir. B.C. 760.] says, "that he first led the race of mortals to righteousness, by teaching them the solemnity of the oath, and propitiatory sacrifices and the figures of Olympos"' (σχήματ' Ὀλύμπου, *Stromata*, i. 15). The reading σήματ' Ὀλύμπου has also been suggested. Lewis (p. 76) vainly endeavours to show that the constellations are not intended, whilst admitting that Clement understood the passage as referring to them. His objection that 'the third subject of his [Cheirôn's] instruction can hardly be the forms of the constellations, *which have no connexion with morality*' [Italics mine.], is completely answered by a perusal of the Poem of Aratos, where their connexion with 'morality' and the goodness of the gods is remarkably set forth. But further: this linking of 'the figures of Olympos' with the oath, sacrifices, and morality generally, strongly shows the archaic character of the quotation, inasmuch as it exactly reflects the mental standpoint connected with the Babylonian Boundary-stones, sometimes incorrectly called 'Zodiacs,' and which have portrayed on them sun and moon and combinations of constellations and other figures, sculptured in their character of daimonic guardians, and not according to uranographic position. From their lofty heights the Host of Heaven looked down with keen eyes upon the race of man, and either marked his delinquencies or cheered his spirit, when walking humbly with the gods. And Cheirôn (the 'Handy,' *i.e.*, 'Skilful') himself, so prominently connected in myth and legend with wisdom and goodness, and raised to heaven as the constellational *Centaur*, is but a reduplication of those Euphratean compound figures, man-bulls and the like, in which a superhuman combination of wit and strength is symbolically expressed.

About the year B.C. 432 Metôn and Euktêmôn, two Athenian astronomers, introduced the famous cycle of 19 years, the ἐννεακαίδεκα κύκλα φαεινοῦ ἠελίοιο (Aratos, *Diosêmeia*, 21); and, speaking of the origin of the constellations, K. O. Müller observes that 'in the 85th Olympiad, Euctêmôn was acquainted with the *Water-bearer*, the *Arrow*, the *Eagle*, the *Dolphin*, the *Lyre*, the *Scorpion*, and the *Horse*' (*Scientific Mythol.* p. 137). We know this because Gemînos of Rhodos, cir. B.C. 77, in his *Eisagôgê eis ta Phainomena*, records various observations of Euktêmôn in connexion with these figures (Vide Petavius, *Uranologion*, p. 64 *et seq.*). In illustration of the archaic origin of the constellation-figures the circumstance is very important. But it affords no assistance to the view that they came into existence comparatively late in Greek history. Of what value to such a theory would be the remark that *Paradise Lost* shows that Milton was acquainted with the *Bull*, the *Snake-holder*, the *Twins*, the *Crab*, the *Lion*, the *Virgin*, the *Scales*, *Capricorn*, and the *Pleiades?* If it be replied, We know *obiter* that Milton was also acquainted with other constellations, then the same rejoinder equally applies to Euktêmôn. The stellar weather calendar preserved by Gemînos shows that the Athenian astronomer was also acquainted with the *Dog*, *Ôrîôn*, the Hyads and Pleiads, the *Crown*, and the *Bird* (there called *Iktinos* = Lat. *Miluus*, the 'Kite'). Yet will anyone pretend that he did not know the *Lesser Bear*, which Gemînos does not connect with him, but which was well known to his contemporary countryman Euripidês, although he was not an astronomer but a poet ? It is of course obvious that Euktêmôn mentions certain constellations because they were particularly connected with meteorology; not because they were the only ones with which he was acquainted. If such an insignificant figure as the *Arrow* was familiar to him, how certain it is that he knew the larger and more important Signs. Müller continues :—'There is *nothing mythological* in any of these appellations,' viz., in those of the *Water-pourer* (not 'Water-bearer') and the other six constellations above mentioned. Now it is just because Müller is so great an authority, and one ever to be remembered with deep respect, that his singularly erroneous views on this subject require a careful refutation. It is quite unnecessary to notice numbers of foolish modern books about the constellations, most of them repeating old errors, some also inventing new ones ; but the great German savant, especially since his conclusions were entirely accepted by such a writer as Lewis, cannot be passed over in silence. It is obviously incorrect that there is 'nothing mythological' in these names. Take *e.g.*, the *Dolphin :* we are at once reminded of the legends and myths of Poseidôn, Ariôn, Palaimôn, Dionysos, Apollôn Delphinios, and the famous horse-headed Dêmêtêr of Phigaleia who held a Dolphin in one hand. And similar considerations apply to the other constellation-names. He proceeds :—'The names are, for the most part, given to the constellations *from their figure* [Italics mine.], and also partly from their relations to atmospherical phenomena.' Now here I beg the reader's special attention, for we are at the parting of the two ways,—the one leading to Nescience disguised as knowledge, the other leading to a knowledge of historical and psychological development. No unprejudiced observer, having his mind free from any special prior ideas on the subject, would, after an examination of the stars of the *Water-pourer*, *Eagle*, *Dolphin*, *Lyre*, and *Horse*, be necessarily reminded of these respective figures ; for the simple reason that the natural arrangement of the stars does not sufficiently resemble such forms. On this point I appeal to heaven itself. The assertion that the names arose from natural configuration is therefore unprovable, absolutely baseless, and *merely repeats the fact that such names exist.* The fact itself, the real *crux*, Müller could not explain. What actually took place was this :—The constellation-former, when he came to his task, had already certain figures, which represented certain ideas, in his mind; and he accommodated the natural arrangement of the stars to these figures. Thus, *e.g.*, he arranged the stars of *Andromeda* into the representation of a chained female, not because they naturally reminded him (or anybody else) of such a figure, but because he desired to express that idea. This explanation, which involves a clearly intelligible mental process from first to last, will be abundantly demonstrated in the sequel ; but, so far as I know, it has never yet been clearly laid down.

I am, of course, aware that the actual configuration of the stars naturally suggests certain figures such as crowns, serpents, rivers, and (the two most remarkable instances) *Taurus*, as a Demi-bull, and *Scorpio*. The science of language well illustrates this feature in the origin of constellation-figures. Thus, a considerable number of words are the direct product of onomatopeia and interjectional cries ; but a far larger number have been formed by an occult imitation (Vide R. B. Jr., *Language, and Theories of its Origin*, 1881), which it will be the task of the scientific linguistic of the future to reveal. So, a certain number of constellations owe their origin to the obvious suggestions offered by the starry host;

but by far the greater number are formed by an occult imitation, on lines of suggestion which have not hitherto been disclosed. And even in the case of obvious suggestions such as the *Bull*,—'very like him lie the stars' (Aratos, *H. D.* 168),—the *Scorpion* or the *Serpent*, the particular form which the stars seem to indicate naturally, is not accepted merely on that account. It has also to be a figure which has already a distinct religious or kosmical significance in the mind of the constellation-former. As noticed, Müller says that the constellation-names were partly given in connexion with atmospherical phenomena. This is true as regards the *Water-pourer*, but how Müller could have known it to be true I am not aware. Speaking of *Aquarius* Prof. Sayce remarks, 'Babylonia is still reduced to an impassable marsh by the rains of January' (*Astron. and Astrol. of the Babs.* in *Trans.* Soc. Bib. Archaeol. iii. 164). But the names *Arrow*, *Eagle*, *Dolphin*, *Lyre*, *Scorpion*, and *Horse*, are not in anyway connected with such phenomena. Müller continues:—'The *Αἴξ*, although not mentioned by any ancient poet [How can he tell? The greater part of ancient poetry is lost.], must have received that name *before* the time of Cleostratus, who placed the Kid beside it. It is obvious that he supposed the name to signify "goat," whereas it originally denoted the "storm-star."' Now the *Aix* is not a constellation, but a particular star, *Capella* (*α Aurigae*); and therefore even if he were right about the original meaning of the name, it would not assist his statement that the names of constellations were often given in connexion with atmospherical phenomena. The ignorant Kleostratos did not even, it seems, know the meaning of so common a Greek word as *ἄιξ*! If any man can believe this, let him believe it. Buttmann, to whom Müller appeals in support of this remarkable statement, merely says (in Ideler, *Sternnamen*, p. 309) that *Aix* practically meant 'Sturmwind,' just as *ἀιγίς* came to mean a 'rushing storm.' He does not deny that *ἄιξ* means 'goat' (Cf. Hêrod. iv. 189). Thus Mr. L. R. Farnell observes, 'We have the title *μελάναιγις* applied to Dionysos, and, as this god has much to do with goats and nothing at all with whirlwinds [This is incorrect, vide R. B. Jr., *G. D. M.* ii. 19.] it could only (?) mean "the wearer of the black goat-skin," and it is so explained by the Scholiast on Aristophanes, *Acharn.* 146' (*Cults of the Gk. States*, i. 97). But, to go to the root of the matter, without further detail at this point in the enquiry, one of the names of the star *Capella* at Babylôn was *Askar;* and Askar 'was really a Sumerian word for "goat"' (Hommel, in *Proc.* S. B. A. Jan. 1896, p. 20; as to the Storm-goat, vide *inf.* p. 218). Müller may truly say that the *Aix* received its name '*before*' the time of Kleostratos. He continues:—'Its mythological reference afterwards arose out of this misconception.' But, as we have seen, there was no misconception. Everyone knew that 'Goat' meant 'goat.' Possibly it may be objected that *Capella* was called the *Goat* at Babylôn by a remarkable accidental coincidence, just as the North American Indians call the seven *Wain*-stars the *Bear*. I therefore add that in the Babylonian sphere the *Chariot* (=*Auriga*) adjoined the *Bull* and the *Goat*-star (Vide R. B. Jr., *The Connexion between Babylonian and Greek Astronomy*, in *The Academy*, Nov. 10, 1894); and, on the

Babylonian monuments, the Olenian *Goat* (Vide *inf.* p. 221) appears carried on the arm of a divinity (Vide R. B. Jr., *E. S. R.* Pt. i. Fig. v. p. 24). And this disposes of the next and last mistake of Müller in this connexion. He says, 'The awkward collocation of many of these forms, and the strange way in which they cross each other [They do not cross each other.]—the Goat and Auriga for instance, seem to indicate a *variety* of sources.' Additional comment is needless.

In further illustration of the principles employed in the forming and naming of constellations, I will take the instance of the *Arrow*, which, as we have seen, was known to Euktêmôn, and is mentioned by Müller in support of his theory. There was, he says, 'nothing mythological' about it, and it was named from its 'figure.' If any constellation could support this view, surely the *Arrow* would. In the Hipparcho-Ptolemy Star-list it consists of five stars, fairly in a line (Vide *sup.* p. 44), and, according to Müller, some unknown observer remarked these particular stars, then thought they resembled an arrow (which to a certain extent they actually do), and then grouped them together in a constellation called the *Arrow*, an appellation which all the world accepted. On reflection we observe that this really tells us nothing except what we already knew, *i.e.*, that these stars form a constellation called the *Arrow*. But, it may be asked, Why did not the observer regard these particular stars as resembling a spear or a sceptre? In the abstract he might just as well have done so. To such a question no answer is possible on the part of Müller and his followers. They could only repeat, as usual making capital of nescience as if it were knowledge, that the whole circumstance was an accident of fancy ; it *chanced* that the constellation-maker selected an arrow. From this vicious circle we escape at once as soon as we know the real fact of the case, *i.e.*, that the *Arrow* is supposed to be shot from the bow of the *Kneeler* amongst the *Birds*. Hence, although apparently so insignificant a constellation, it is as old as the *Kneeler*, of which Aratos says,

> ' Of it can no one clearly speak,
> Nor to what toil he is attached ; but, simply,
> *Kneeler* they call him ' (*H. D.* 64-6).

It was an archaic Sign the primitive history of which had then long since faded from general memory. Now we see that there was no accident of fancy in the selection of an arrow, instead of a spear or a sceptre ; and it will be observed that in the stellar description the point of the *Arrow* is, as of course, turned *from* the *Kneeler*. In the abstract, it might just as well have been turned either way. So we see that in this crucial instance, which at first sight appears fully to support Müller's view, his theory breaks down altogether. The *Arrow* has a mythological reference, and it is not named from its ' figure ' ; but, in accordance with the principle I have laid down, the constellation-maker accommodated the natural arrangement of the stars to a certain particular idea previously existing in his mind (As to the *Arrow*, vide also *Sem.* pp. 163-4).

Euripidês, B.C. 480-406, very properly places ' the dwelling of Atlas ' (*Hêrak. Mainom.* 405), = *Ph.* Atel (' the Darkness.' Vide Sayce, *Herod.* p. 416) in the west (*Cf. Hippol.* 1053 ; vide *inf.* p. 139). It is the Darkness which raises, makes visible, and sustains on high 'the sphere of the shining stars' (*Orestês*, 1685), which formed the frame of Argos, 'the all-seeing, gazing with spangled eyes, some eyes beholding at the rising of stars, and others closed at their setting' (*Phoinis.* 1115-17). This 'star-faced ether of Zeus is wont to dance' (*Iôn*, 1078-9), to take part in the great kosmic nature-dance (Vide *sup.* p. 123; R. B. Jr., *G. D. M.* i. 103 *et seq.*); and human dancing is, to a large extent, imitative, and sacred or semi-sacred in origin. The sun 'cuts his way through the stars of heaven' (*Phoinis.* 1), *i.e.*, through the Signs of the Zodiac, to the obliquity of which (Vide *sup.* p. 124), connected in legend with the crimes of Atreus and Thyestês, the poet also refers. 'Then, in truth, Zeus changed the shining paths of the stars and the light of the sun' (*Êlek.* 727-9; Cf. *Orestês*, 1001-10). He mentions the constellation of the *Twins:* 'Kastôr and Polydeukês in the clefts of the sky' (*Ibid.* 1636), 'the Tyndaridai, sons of Zeus,' in 'the sphere of the shining stars' (*Ibid.* 1685-9). Also the two *Bears:* 'Twin Bears with the swift-wandering rushings of their tails guard the Atlanteian pole' (*Peirithoös*, Frag. iii. ap. Clem. Alex. *Stromata*, v. 6), a piece of grandiloquent inappropriateness, as the motion of the *Bears* is 'slow and solemn,' and they are by no means 'twins.' In another passage (*Iôn*, 1141-58), he describes 'sacred tapestries,' 'spoils of the Amazons,' *i.e.*, connected with the non-Aryan east,[1] with figures wrought on them a marvel to behold, such as 'Heaven collecting the stars in the circle of ether,' the Sun, Hesperos, 'black-robed Night' followed by the stars, of which he names 'the *Pleiad'* (Πλειὰς), 'sword-bearing *Ôrîôn*,' the *Bear* (= *Ursa Maj.*) and the *Hyades.* These latter stars he is stated to have said in the *Phaethôn* were three in number (Schol. in Arat. *Phainom.* 12). Euripidês, like Ptolemy in his Star-list, uses the term 'Pleiad' for the group of the seven *Plêïades* regarded collectively. Elsewhere he speaks of 'the Pleiad with-seven-paths' (*Orestês*, 1005; *Iph. en Aul.* 8), and 'the central *Plêiades*' (*Helenê*, 1489), in allusion to their position in the heavens. He applies the feeble epithet 'nightly' to *Ôrîôn* (*Ibid.* 1490). The sword of *Ôrîôn*, 'ensifer Orion' (Ovid, *Fasti*, iv. 388), equally appears in Aratos (*Phainom.* 588) and in the Hipparcho-Ptolemy Star-list. *Seirios* is mentioned (*Iph. en Aul.* 7) as being 'near' to the *Pleiad;* and in another passage (*Elek.* 468) Pleiads and Hyads are named together in Homeric fashion, as wrought upon the shield of Achilleus.

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[1] 'The Amazons were the warrior priestesses of the great Asiatic goddess, whom the Greeks called the Artemis of Ephesos, and who was in origin the Istar of Babylonia modified a little by Hittite influence' (Sayce, *Rel. Anct. Babs.* p. 235).

Ȯ. Müller, speaking of the Family-group (*Kêpheus*, *Kassiepeia*, *Andromeda*, and *Perseus*), says,—'These constellations were not known to Greek poetry before the time of Alexander, and no trace of them can be pointed out until they make their appearance on the sphere of Eudoxus described by Aratus;' and adds, 'To me it seems probable that by these names . . . it was meant to translate Chaldean [he should have said 'Phoenician'] appellations.' As Eudoxos died cir. B.C. 350, these four grouped constellation-figures with names originally non-Hellenic were not first brought from the East by anyone in the train of Alexander; nor did Eudoxos originate them any more than Homer or Hêsiod originated *Ôrîôn.* If it were a fact that they 'were not known to Greek poetry before the time of Alexander,' then, inasmuch as most of this poetry is lost, we could never know that this fact was true. But is this a fact, and do they suddenly appear on the sphere of Eudoxos without leaving any prior trace? Certainly not. Sophoklês and Euripidês each wrote a play called *Andromeda*, and the author of the *Katasterismoi* states (cap. xvi.), that Sophoklês related how Kassiepeia had boasted that she was more beautiful than the Nêreids; and afterwards (cap. xxxvi.), when speaking about the *Sea-monster* which, he says, Poseidôn sent to Kêpheus on account of the boast of Kassiepeia, adds: 'But Perseus slew it, and on this account *εἰς τὰ ἄστρα ἐτέθη, ὑπόμνημα τῆς πράξεως αὐτοῦ. 'Ιστορεῖ δὲ ταῦτα Σοφοκλῆς ἐν τῇ 'Ανδρομέδᾳ.*' So Hyginus (*Poet. Astron.* ii. 10) says that concerning Kassiepeia, 'Euripides et Sophocles et alii complures dixerunt ut gloriata sit se forma Nereidas praestare: pro quo facto inter sidera sedens in siliquastro constituta est: quae propter impietatem vertente se mundo resupinato capite ferri videtur.' The only fair construction of the above passages is that Sophoklês and Euripidês knew of the constellational *Sea-monster* and *Kassiepeia*. So of Andromeda, Hyginus (*Poet. Astron.* ii. 11) says that 'Minervae beneficio inter astra collocata propter Persei virtutem . . . . sed de hac Euripides hoc eodem nomine fabulam commodissime scribit.' Of course if Euripidês knew of the constellational *Kassiepeia*, he was almost certain to know of the constellational *Andromeda*, and so it is evident that he did.

That *Kêpheus* and *Perseus* were known as constellation-figures to Hellenic writers of the fifth century B.C., follows almost as of course; and indeed Euripidês suggestively introduces on the circumference of the shield of Achilleus Perseus holding the Gorgon's head (*Elek.* 459-61).

Constellation-names, naturally enough, are not found plentifully in the works of poets, especially in the case of a poet most of whose works have been lost. We possess seven plays of Sophoklês, B.C. 495-406, and the titles of about 119 of his lost plays. For aught we know, he may have specified every primitive constellation of the Greeks, although, of course, this is exceedingly improbable. But, by great good fortune, a fragment of the *Nauplios* which has come down to us, is of the highest importance in the present connexion. It is quoted by Achilleus Tatios, *Êisagógê eis ta Aratou Phainomena*, cap. i. The name of Nauplios ('Navigator') is naturally attached to several personages in Greek mythico-historic legend, two of whom are confounded together by Strabo (VIII. vi. 2), who also draws some erroneous conclusions from his own mistake. Nauplios, son of Poseidôn, reputed founder of Nauplia (Paus. II. xxxviii. 2), the port of Argos, and called by some the originator of the constellation *Ursa Maj.* (Theôn, in Arat. *Phainom.* 27), is a representative of Phoenician knowledge and colonization. Another Nauplios, a similar personage, is styled king of Euboia and father of Palamêdês (Apollod. II. i. 5), one of the most interesting figures in Greek mythico-historic legend. In the passage in question Nauplios is thus made to speak of him:—

> *Οὗτος δ'ἐφεῦρε τεῖχος 'Αργείων στρατῷ*
> *σταθμῶν, ἀριθμῶν καὶ μέτρων ἑυρήματα·*
> *κἀκεῖν' ἔτευξε πρῶτος ἐξ ἑνὸς δέκα,*

κὰκ τῶνδέ γ' αὖθις εὖρε πεντηκοντάδας
εἲς χίλι'· οὖτος εἶς στρατῷ φρυκτωρίαν
'ύπνου φυλάξεις, ἕς θ'ἕω σημάντρια
'εδειξε κἀνέφηνεν οὐ δεδειγμένα·
'εφεῦρε δ'ἄστρων μέτρα καὶ περιστροφὰς,
τάξεις τε ταύτας, οὐράνιά τε σήματα,
ναῶν τε ποιμαντῆρσιν ἐνθαλασσίων
Ἄρκτου στροφάς τε καὶ Κυνὸς ψυχρὰν δύσιν.

Strabo (XVI. ii. 24) sums up the unhesitating opinion of antiquity in his dictum that 'astronomy and arithmetic came to the Hellenes from the Phoenicians.' He says that the latter people were led, naturally enough, to study these sciences from their commercial accounts and sailings by night; and here, in exact accordance with this view, we find the arts of fortification, in which the Phoenicians excelled, of numbers and arithmetic, of military watch and ward, of navigation, and of astronomy, including the dividing of the stars into constellational groups and the naming of such groups, ascribed to Palamêdês, a grandson of the Phoenician Poseidôn (Euripidês, *Iph. en Aul.* 198). Homer is silent concerning the hero, and for this two reasons at once present themselves, (1) the death of Palamêdês occurred prior to the opening of the *Iliad;* and (2) the poet 'sang for the glory of Greece' (Gladstone, *Juventus Mundi*, p. 145); and Palamêdês, a personage in many points superior to the Hellenic heroes, and, according to legend, infamously treated by them, and particularly by the poet's favourite Odysseus (Vide Hyginus, *Fab.* cv.) would naturally be somewhat avoided by a very patriotic Hellene. Like his father Nauplios, Palamêdês, as representing the historical Phoenician element in Hellas, is in almost constant collision with the more purely Greek element, by which he is eventually overcome. But, although Homer ignores him, Polygnôtos did not. In his mighty picture of the Under-world, perhaps the finest painting ever made, and which adorned the Leschê at Delphoi (Vide R. B. Jr., *Tellis and Kleobeia*, 1895), the Thasian master represented Palamêdês playing at dice, a sport which he was said to have invented (Paus. II. xx. 3), 'with Salaminian Aias and Thersitês' (Ibid. X. xxxi. 1). And what is Palamêdês but the Ph. BAAL-MIDDOH[1] ('Lord-of-the-Measure'), god of numbers, figures, weights, scales, dice, letters, arithmetic, astronomy, etc.; and the latter part of whose name was understood as meaning 'the Wise' (Cf. Mêdeia, 'the Wise'-woman). In Gk. legend he is particularly connected with the invention of the letters θ, φ, χ, and ξ (Vide Canon Is. Taylor, *The Alphabet*, 1883, ii. 70). Another somewhat similar personage is Aga (= Aryan root *ak*, 'to pierce,' 'to be sharp')-mêdês (Sem. 'the Great-measurer,' Gk. 'the Very-wise') who represents Phoenician constructive ability in Boiôtia, and who forms with Trophônios (= Baal Trophâ, 'the Lord of Cure,' vide Bérard, *Cultes Ar.* p. 293), the Pair of god and god-introducer.

In the last line of the passage from the *Nauplios* Sophoklês sums up the astronomical aspect of the matter, by naming the *Bear* as protagonist of the northern, and the *Dog* on behalf of the southern constellation-figures; and it will be observed that he speaks not of *Seirios*, generally merely the Dog-star, but of *Kuôn*, the constellation, whose *frigidum occasum* on the seventh day of *Sagittarius*, accompanied by tempest, had been noted by Euktêmôn (Vide Gemînos, *Eisagôgê eis ta Phainom.* Cap. xvi. Calendar). The *Andromeda* of Sophoklês has been already referred to (Vide *sup.* p. 135). In an uncertain *Fragment*, quoted by Hêsychios (in voc. *Seirios*) he alluded to the constellation of the *Dog*; and, in the face of the evidence, is there any room for doubting whether he and Euripidês, contemporaries of Euktêmôn, were acquainted with the primitive constellations of the Greeks?

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[1] So *Pal-aimôn = Baal-hamon.*

According to Aischylos, B.C. 525-456, Atlas (Vide *sup.* p. 132), the Titan, sire of 'the seven wingless Peleiades' (*Heliades*, Frag. vii.), groans beneath the weight of 'the heavenly sphere' (*Prom. Des.* 435-9). The fact that the great toil of Atlas (the 'Darkness') makes his starry children the Pleiad sisters, whose name he playfully connects with *πέλεια* ('ring-dove'), visible, is clearly present to the poet's mind, *μέγιστον ἆθλον . . . ἔνθα νυκτέρων φαντασμάτων ἔχουσι μορφάς.* Elsewhere he alludes to 'the setting of the *Pleiades*' (*Ag.* 799); and their central position in the heavens (Vide *sup.* p. 134), and great general importance (Vide *inf.* p. 270), peculiarly connect them with the famous Sphere-supporter. The poet refers to 'the myriad-eyed herdsman' (*Prom. Des.* 581), 'the earth-born Argos' (*Ibid.* 579; vide *sup.* p. 133), so called since the great majority of the stars rise from and sink again to the Under-world; and gives the starry heaven as a shield-device (*Hepta epi Thê.* 383). In another passage he alludes to one chief point of interest which the stars possessed for early observers, 'The host of the nightly stars, the bright powers bringing winter and summer to mortals' (*Ag.* 4-5). He connects 'the dog *Seirios*' with heat (*Ibid.* 940).

With Aischylos it is the Titan Promêtheus ('Forethought' personified), brother of Atlas, who reveals to man 'the risings of the stars and their settings hard-to-discern,' as a means whereby they may have sure sign of winter, flowery spring, and fruitful summer. He, too, discovered numbers, letters, the steed-drawn chariot, ships, and the arts of divination, in fact 'all arts for mortals are from Promêtheus' (Vide *Prom. Des.* 462-514), who is thus a combination of Kadmos, Palamêdês and the wisdom of the Semitic east generally. Brother of the Ph. Atel, the prototype of his story was Babylonian. Lugal-tudda ('the Lusty-king') 'brought the lightning, the fire of heaven, from the gods to men, giving them at once the knowledge of fire and the power of reading the future in the flashes of the storm. Like Promêtheus, therefore, he was an outcast from the gods. He had stolen their treasures and secret wisdom, and had communicated them to mankind. In Babylonia, as in Greece, the divine benefactor of primitive humanity was doomed to suffer' (Sayce, *Rel. Anct. Babs.* p. 294).

The view which connects the name 'Titan' with *τίταξ* = *βασιλεύς* and *τιτήνη* = *βασιλίς* is altogether unsatisfactory. In Sanchouniathôn i. 4, Philôn of Byblos translates by Τιτάνες a term which in the original was almost certainly 'Nephîlîm' ('Giants.' Cf. *Gen.* vi. 4; vide Bunsen, *Egypt's Place*, iv. 222; Lenormant, *Les Origines*, i. 541); and, on the whole, it is more than probable, that, from the Greek point of view, the name, is, in accordance with the old Hesiodic derivation (*Theogonia*, 207) connected with words meaning 'stretched,' 'extended,' etc., but in height, *i.e.*, as being of gigantic stature, not with reference to outstretched hands, a circumstance not in accordance with the Hesiodic story; nor, again, has the name any reference to stretching a bow (Vide *Etymol Mag.* in voc. *Titanes*). In Euphratean archaic myth king Etanna ('Sire-of-heaven') had once ruled in the Upper-world; and his 'phantom was believed to sit, crowned, on a throne in Hades along with the shades of the other heroes of old time' (Smith and Sayce, *Chal. Ac. Gen.* p. 141). 'He seems to be the Titan of the Greek writers' (*Ibid.* p. 146), *i.e.*, Alexander Polyhistor, Eusebios, etc.; and his position with his fellows reminds us of the Homeric 'gods below that are around Kronos' (*Il.* xiv. 274), 'those below Tartaros that are called Titans' (*Ibid.* 279). It is quite possible that the form *Etan*(*na*) may reappear as Gk. *T-itan*, for an added initial consonant is by no means unusual in Greek transcriptions, *e.g.*, the Sem. *Yâêl* = Gk. Δίαλ (Hêsychios), Sem. 'Ati = Gk. Γάτις.

Prof. D'Arcy Thompson is of opinion that the passage in which Aischylos speaks of two eagles attacking a hare (*Ag.* 117) has an astronomical basis, and primarily alludes to the constellations the *Eagle*, the *Vulture* (= the *Lyre*), and the *Hare*; and he refers in illustration to 'the two eagles that devour the Hare on the famous decadrachm of Agrigentum' (*Bird and Beast in Anct. Symbolism*, p. 187). This is quite possible, and the design of two eagles attacking a prostrate hare is Euphratean (Vide Perrot and Chipiez, *Hist. of Art in Chaldaea and Assyria*, Vol. ii. Fig. 219). Aratos notes that the *Hare* rises when the *Eagle* sets (*H. D.* 591, 594-5), and sets when the *Eagle* rises (*Ibid.* 677-8, 690-1).

The references to stars and constellations scattered here and there throughout the fragments of early Hellenic literature, tragic, lyric, and historic, forcibly suggest that many other similar allusions existed in works now lost. No strictly astronomical versifier appeared before Aratos, and no one else would be likely to have given a complete, or even a full list of the heavenly Signs. Any poem which did so must necessarily have been as unpoetical as most of the *Phainomena* itself. For the mere string of names, and probably also for the constellations as such, many a bard cared as little as Anakreôn, B.C. 563-478, or some Anakreontic writer, when he desires that on his drinking-cup may be embossed 'neither stars nor *Wain*, nor the doleful (*στυγνὸν*) *Ôríón*,' and asks: 'What care I for the *Pleiades?* what for the fair [*i.e.*, 'bright'] *Ploughman?*' (Vide Bergk, *Poetae Lyrici Graeci*, iii. 1048). He prefers Mainads, grape-clusters, and the like. But even he observed the stellar sky at times, and elsewhere sings :—

Μεσονυκτίοις ποτ' ὥραις
Στρέφεται ὅτ' Ἄρκτος ἤδη
Κατὰ χεῖρα τὴν Βοώτου (Ibid. p. 1061).

And, if it be remarked that endless mention is made of *Plëiades* and *Hyades*, and *Ôríón*, and the *Bear*, and *Ploughman*, let it be remembered that, if now, we ask anyone on a starry night to point out constellations, he is almost sure to begin with the *Bear*, and perhaps will recognize the W of *Kassiepeia* or the *Belt* of *Ôríón*, if in sight, and then probably stops short, although many other Signs are visible. And, again, how few stars and constellations are mentioned by the modern poet. Sapphô (*Frag.* lviii. ap. Bergk) appears to refer to the constellational *Andromeda* when she says :—

Ἔχει μὲν Ἀνδρομέδα κάλαν ἀμοίβαν.

Such a subject was not foreign to her poetry, for in another place (*Frag.* lii.) she speaks of *σελάννα καὶ Πληΐαδες*, and the 'recompense' which Andromeda received was her permanent translation to the skies. Pindar, a Boiotian, mentions the Boiotian Ôrîôn, and in his constellational character;—'It is natural that not far from the *Peleiades Ôariôn* should advance' (*Nemeon.* ii. 17-18). The passage is quoted in Athenaios, xi. 80, in which, and in caps. 81-2, are given many quotations from the poets respecting the *Pleiades.* Amongst other authors referred to are the Byzantine poetess Myrô, cir. B.C. 330, the Rhodian poet Simmias, cir. B.C. 310, 'and the author of the poem called *Astronomy*, which is attributed to Hêsiod.' Elsewhere (*Dithyramboi*, Frag. iv.) Pindar refers to the chase of Plêïonê, mother of the Pleiads (Vide Athen. xi. 79) by *Ôrîôn* and his *Dog* (Vide *Etymol. Mag.* in voc. *Pleias*, where the passage of Pindar is cited). Theognis, B.C. 544, alludes to the constellation of the *Dog* (l. 1040, ap. Bergk, ii. 548). Simonidês of Keôs, B.C. 556-467, sings how 'Atlas was the sire of seven daughters with-violet-locks, who are called the heavenly *Peleiades*' (*Frag.* xviii. ap. Bergk). In 1855 Mariette 'in sepulchro quod fuit haud ita procul a secunda Pyramide,' found a fragment of Alkman, who 'flourished from about 671 to about 631 B.C.,' in which is a passage (*Frag.* xvi. ap. Bergk) connecting the '*Peleiades*' with Orthia, *i.e.*, the Semitic Artemis, and with 'the plough' (*φάρος = ἄροτρον*).[1] So Aratos:—

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[1] In the same passage Alkman alludes to *ποικίλος δράκων παγχρύσιος*, which may perhaps, especially since the *Pleiades* are mentioned, refer to *Draco*. But, as Bergk observes, 'difficillima haec carmina.'

> 'Zeus bade them show when winter first begins,
> And summer, and the season of the plough' (*H. D.* 266-7).

In another passage (*Frag.* xxxii.) Alkman writes:—

("Αρκτον δ') ἐπ' ἀριστερὰ χηρὸς ἔχων,

a good illustration of the way in which Homeric descriptions and expressions were perpetually referred to and repeated (Vide *Od.* v. 277 ; *inf.* p. 252).

Alkaios, B.C. 610, writes, *ἐπεὶ καὶ κεφάλαν καὶ γόνα Σείριος ἄζει* (*Frag.* xxxix.). These words also occur in Hêsiod, *Erga*, 587, and some think were there inserted from Alkaios. Stesichoros, B.C. 632-560, sang of Kyknos, who opposed Hêraklês and was placed amongst the stars as the *Swan*, but as his poem, which was called *Kyknos*, is lost, we are unable to say that the hero was alluded to in a constellational aspect. It is practically certain that the mass of stories in late writers, such as Ovid, which relate the translation to the stars of different well-known mythological personages, were, in all instances, founded upon similar statements of earlier writers, most of which have not come down to us. As Stesichoros sang of Kyknos (the 'Swan'), so the great Boiotian poetess Korinna, B.C. 500, the conqueror of Pindar, hymned the mighty Boiotian hero Ôriôn (Vide *Frags.* ii., iii., ap. Bergk); but, here again, we are equally ignorant of details.

Turning from the lyric writers to the earlier historians, we find that Hekataios of Milêtos, who died cir. B.C. 476, like many other 'poets and prose-writers about archaic myths,' treated of 'the Lernaian Hydra,' *τὸν ἆθλον τον* 'Ηράκλειον (Aelian, *Peri Zóôn*, ix. 23). Most students are aware that early mention is made of all, or of nearly all, of the constellation-figures; but what is generally asserted (without any evidence, and, as will appear from the present investigation, in direct opposition to a vast mass of evidence) is that the constellation-figures are not mentioned *as such;* but that, *e.g.*, *Hydra* was made a constellation long after the time of Hekataios, and is merely spoken of by him as a terrestrial serpent or monster. As I have often to observe in these cases, inasmuch as the original account is lost, it is impossible to say with absolute certainty how the subject was treated. But a single collateral illustration, one borrowed from art, will show how probable it is that the constellation *Hydra* was perfectly familiar to Hekataios. Amongst the most ancient cities of Krêtê was Phaistos (Cf. *Il.* ii. 648), which 'was said to have been one of the three founded by Minos' (Leake, *Numis. Hellen.* in voc. *Phaestus*). One of its coin-types, in use 'Circ. B.C. 431-300,' represents 'Herakles, striking with club at Hydra; at his feet, crab; over his arm, lion's skin' (Wroth, Brit. Mus. Cat. of *Gk. Coins of Crete and the Aegean Islands*, p. 62). According to Pausanias (II. vi. 3), Phaistos was regarded as a son of Hêraklês, who migrated to Krêtê from Sikyôn, at which place he had taught the people to sacrifice to Hêraklês, not as a hero, but as a god (Ibid. x. 1). The meaning of such traditions is perfectly simple. The cult of the foreign and Phoenician Hêraklês, opponent of monsters, obtained in remote times at the Kretan city of Phaistos. On the mainland at first only lower honours were paid to this divinity. As every coin-type, long ere it was used as such, must have been familiar to the special locality which adopted it, the combination of *Hêraklês*, *Lion-skin*, *Hydra*, and *Crab* must have been familiar at Phaistos at least as early as B.C. 500, and doubtless for centuries before that time. But the constellational combination of *Lion*, *Water-snake* and *Crab* had admittedly been known in Hellas 'before the time of Eudoxos' (Vide *sup.* p. 122), and was familiar to the Greeks of the fifth century B.C.; therefore there is an undoubted connexion between the coin-type and the constellational combination.[1] If, then, the constellational aspect of the myth was familiar to the fifth century, it was in all probability known by the accomplished Hekataios, who, as an Asiatic Greek, had excellent opportunity of being acquainted with astronomical myths originally derived from foreign sources. I have treated of this reference to the writings of Hekataios with some particularity, because precisely the same considerations apply to many other passages in, or references to, the works of early writers, where constellation-figures are mentioned without being, to our knowledge, expressly described as such.

Hellanikos of Mytilênê, cir. B.C. 496-411, in the first book of his *Atlantias*, which contained the history of Atlas and his descendants, stated that his daughters Taÿgetê, Maia, and Êlektra wedded with Zeus, Alkyonê and Kelainô with Poseidôn, Steropê with Arês, and the seventh, Meropê, with Sisyphos, a mortal, 'on account of which she was dim' (*ἀμαυρὰν*). These are the names of the seven Pleiads, as given by Aratos. He adds that the Hyades were so called 'from the figure of the arrangement of the stars,' which is not unlike the letter *υ*, 'or because at their rising and setting Zeus rains' (*Frag.* lvi.). Thus, at an early period, all these stars had been carefully observed, and even the 'dark sister' of the Pleiads had a special story of her own. It is quite certain that persons who were very familiar with stellar-combinations like the Hyads and Pleiads, would not be ignorant of a number of other such groups, most of which were chiefly formed of stars larger than the *Clusterers*. According to one version of the myth, these lost their brilliancy on seeing the destruction of Troia (Vide Servius, in Ver. *Georg*. i. 138). It is noticeable that stellar personages are nearly always connected in some way with the Semitic element. Thus Êlektra is mother of Harmonia (Diod. Sik. v. 48), wife of Kadmos, and, according to Hellanikos (*Frag*. cxxix.), the Elektran gates at Thebai were named after her; whilst Hyas, mythic sire of the *Hyades*, is married to Boiôtia, and was regarded as the sire of the Hyantes (Vide Pliny, *Hist. Nat.* iv. 12), who were said to have been defeated by Kadmos and his Phoenician army (Paus. IX. v. 1).

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[1] That there was an exceedingly close connexion between coin-types and constellation-figures will appear very clearly in the course of the enquiry (Vide *inf.* Chap. V.).

Pherekŷdês of Athens, who 'flourished' B.C. 500-450, and Euphoriôn in the third century B.C., relate that 'Ôriôn, when hunting with Artemis, endeavoured to offer her violence. The goddess was angry and sent from the earth a scorpion, which, having fastened upon the joints of his neck, slew him; but Zeus in pity placed him amongst the stars. Therefore when the *Scorpion* rises, *Ôriôn* sets' (Schol. in Hom. *Il*. xviii. 486). The story is repeated by Aratos (*Phainom*. 636-46). Achaios of Eretria, the tragic poet, who was born B.C. 484, and Pherekŷdês, reckoned seven *Hyades* (Schol. in Arat. *Phainom*. 172); and the group is at present called 'a cluster of seven stars in the *Bull's* head.' Five

Hyades, Phaisulê, Korônis, Kleeia, Phaiô, and Eudôrê, were named in the *Astronomia* attributed to Hêsiod (Schol. in Arat. *Phainom.* 172, 254); and the *Hyades* are five in number in the Hipparcho-Ptolemy Star-list, *i.e.*, α, ϵ, γ, and the groups of δ^1 and θ^1, *Tauri:* Mousaios, also, is said to have reckoned five *Hyades* (*Ibid.*). Pherekýdês mentioned the *Crown* (Schol. *Od.* xi. 320), which was given by Dionysos to Ariadnê.

Thalês, cir. B.C. 636-546, was 'of the family of the Thelidai, who are Phoinikians by descent, among the most noble of all the descendants of Kadmos and Agênôr ['the Mighty-one,' *i.e.*, the god Baal], as Platôn testifies. He was the first man to whom the name *Wise* was given . . . As some people state, he left no writings. For the book *On Naval Astronomy*, which is attributed to him, is said really to be the work of Phôkos the Samian. But Kallimachos was aware that he was the discoverer [*i.e.*, a prominent introducer of the practical use] of the *Lesser Bear* (Vide Kallim. *Frag.* xciv.; Aratos, *Phainom.* 39-44) . . . He is said to have been the first [amongst the Greeks] who [scientifically] studied astronomy, and who foretold the eclipses and motions of the sun, as Eudêmos relates in his history of the discoveries made in astronomy; on which account Xenophanês and Hêrodotos praise him greatly' (Diogenês Laertios, *Thalês*). Hêrodotos (i. 170) styles him 'a man of Milêtos, of Phoinikian descent.' It is very unfortunate that the works of Phôkos and Eudêmos are lost. Thus, the Phoenician-sprung Thalês, to quote the words of Delambre, 'passe pour le fondateur de l'astronomie grecque' (*Histoire de l'Astronomie Ancienne*, i. 13). Diogenês also states that, according to some, Thalês 'wrote two books, and no more, about the solstice and the equinox, thinking that everything else was easily to be comprehended.' 'He said that the *Hyades* were two, the Northern-one [= ε *Tauri*] and the Southern-one' (Schol. in Arat. *Phainom.* 172), *i.e.*, *Aldebaran, α Tauri.* No fact in connexion with early Greek astronomy is more familiar than that Thalês induced the Hellenes to steer by *Ursa Min.* instead of looking to *Ursa Maj.*, and thus, in a sense, he 'discovered' the former constellation. It is quite clear that this great sage, of Phoenician descent, and evidently versed in the wisdom of his ancestors, a man who gained immense renown by his famous and correct prediction of an eclipse (Hêrod. i. 74), and who was the founder of scientific Greek astronomy, who was acquainted with the (two) *Hyades* and the *Little Bear* under those names, must have known of the other primitive constellations of the Greeks. Philôn of Byblos, who translated the work of Sanchouniathôn *On the Phoenician Letters*, in a passage preserved in Eusebios (*Prop. Euan.* i. 10), says, Εἴρηται δὲ ἡμῖν περὶ αὐτοῦ ἐν τοῖς ἐπιγραφομένοις περὶ Ἐθωθιῶν. As Lenormant observes, 'Les ἐθώθια sont manifestement les signes célestes, *êthûth*, *hébr. ôthôth*' (*Les Origines*, i. 552). The Phoenician treatises on the constellation-figures, like the works of Phôkos and Eudêmos, have perished; and it is this loss of nearly all the early authorities which compels us to demonstrate the knowledge of the ancients on the subject by the laborious piecing together of innumerable scattered fragments of evidence whose combined force is irresistible; whilst at the same time had some single lost work of antiquity come down to us, we should probably have reached the same goal without an effort.

No particular constellation-figure is connected with Pythagoras of Samos, whose 'birth was not earlier than 569, and his death not later than 470 B.C.' (Lewis, *Astron. of the Ancients*, p. 123); and who is 'stated to have originated the division of the heavenly sphere into five zones, cut obliquely by the zodiac' (*Ibid.* p. 132). This, of course, implies the knowledge of constellations. Aristoxenos, the musician, a disciple of Aristotelês, stated, somewhat absurdly, that Pythagoras 'was the first person who introduced measures and weights amongst the Hellenes' (Diog. Laert. *Pythagoras*, xiii.). He evidently overlooked the claims of Palamêdês and others. Parmenidês says that Pythagoras 'was the first person who asserted the identity of Hesperos and Phôsphoros' (*Ibid.* xiv.), 'sweet Hesper-Phosphor, double name For what is one' (Tennyson, *In Memoriam*, cxx.); and 'the Pythagoreans are declared to have first laid down the position of the planets' (Lewis, *Astron. of the Ancients*, p. 131). It is noticeable that all or nearly all of these famous early investigators of astronomical lore belong either to some of the islands of the Aigaion or to the Asiatic seaboard, in each case being well within the Phoenician sphere of influence.

Epimenidês, the Kretan, cir. B.C. 600, is said to have recorded the translation to the skies of *Aix* and *Aigokerôs* (*Capricorn*, *Katas.* xxvii.). Peisandros of Kameiros in Rhodos, cir. B.C. 650, was the author of a poem called *Hêrakleia*, which treated of the exploits of Hêraklês, and in which he is said to have been represented for the first time with club and lion-skin. According to K. O. Müller, Peisandros also first fixed the special labours of the hero at twelve in number (Vide *Hist. of Gk. Lit.* ix. 3; *Doric Race*, II. xii. 1). That is, Peisandros presented the Euphratean and Semitic aspect of the conquering Sun-god (Vide R. B. Jr., *E.*, Appendix III., The Sun-god and the Lion), Gilgames, the hero who has a special labour in each month and Sign of the Zodiac. He did not arbitrarily choose the number twelve. He also stated that the *Hydra* was many-headed (Paus. II. xxxvii. 4); not, as Pausanias suggests, 'in order that the creature might appear more fearful,' but in accordance with Oriental tradition.[1] Nor, again, did he invent the legends about Hêraklês; and thus Clemens Alex. (*Strom.* VI. ii. 25) charges him with publishing as his own what was really the *Hêrakleia* of Pisînos of the Rhodian town of Lindos. This is quite possible, and Pisînos in turn would have obtained the stories from others. I have noticed (*Sup.* p. 145) that *Hêraklês*, *Hydra*, *Crab*, and *Lion-skin* (= *Leo*), four constellation-figures, are combined at an early period on a Kretan coin; and, if we possessed the *Hêrakleia*, it is more than probable that we should find Peisandros and Pisînos were well aware of the translation of their hero and his opponents to the skies. If it should be objected that Aratos calls this constellation the *Kneeler*, and not *Hêraklês*, the answer is that Panyasis of Halikarnassos, who was put to death cir. B.C. 457, and who followed in the footsteps of Peisandros, writing a poem, also called the *Hêrakleia*, in fourteen books containing nine thousand lines, did call the *Kneeler* Hêraklês, as Avienus has fortunately recorded :—

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[1] Cf. *W. A. I.* II. xix. No. 2, Ob. 7-8, ap. Sayce: 'The monstrous Snake bears the yoke on its seven heads . . . the strong serpent of the sea.'

> 'Laboranti similis succedet imago,
> protinus expertem quam quondam dixit Aratus
> nominis et cuius latuit quoque causa laboris,
> Pannasi sed nota tamen, etc. (*Aratea*, 172-5) ;

and the poet proceeds to show that the elder bard connected this constellation-figure with 'Amphitrioniades' and the tale of the Dragon and the golden apples. That Panyasis was fully justified in doing this, appears from the fine kneeling Hêraklês of Thasos (Vide Svoronos, *Types monétaires des anciens*, pl. xvi.), a well-known Phoenician settlement. It is therefore clear that at the era of Panyasis the northern constellation-figures were the same as at present. He also related that during the fight with the *Hydra*, Hêraklês trampled upon the *Crab* which had bitten his foot (*Katas* xi.). As Panyasis was acquainted with the northern constellations, there is no reason to doubt that he was equally familiar with the zodiacal and other Signs. His standpoint as regards his hero was the same as that of Peisandros, that is to say, he laid much stress upon incidents connected with the foreign aspect of Hêraklês the Sun-god. 'The Alexandrines placed him among the five principal epic poets, and some went so far as to compare him with Homer' (K. O. Müller, *Doric Race*, i. 532); and here, as unfortunately in so many other instances, the almost total loss of the works of this school of Asiatic Greek poetry deprives us of highly important links between Hellas and the Semitic East.

Aglaosthenês, otherwise Agaosthenês, a writer of early but uncertain date, who compiled a history of Naxos, knew the *Lesser Bear* as '*Kynosoura*' (Vide *Katas.* ii.; R. B. Jr., *H. D.* p. 92), and recorded the translation of the *Eagle* (*Katas.* xxx.; Schol. in German. in loc.).

To Hêsiod, who may be placed in the eighth century B.C. (Müller dates 'the time of Hesiod' at '800 B.C.'), various works were attributed by the ancients (Vide Paus IX. xxxv. 5), including the *Eoiai*, an account of the heroines beloved by the gods, and to which part of the existing *Aspis Hêrakleous* probably belonged; and the *Astrikê Biblos* or *Astronomia*, which is quoted by Athenaios (xi. 80):—'The author of the poem called *Astronomy*, which is attributed to Hêsiod, always calls the *Pleiades Peleiades*, saying,—"Which mortals call *Peleiades*," "Now the *Peleiades* of winter set,"' etc. We notice, therefore, that in the opinion of antiquity, Hêsiod wrote specially upon this subject. *The Shield of Hêraklês*, an account of the overthrow of Kyknos (= the *Swan*), son of Arês, by the hero, contains no express mention of any constellation-figure, or of any star except the *Dog-star*. The Dragon, the Serpent, the Lion, the Dolphin and Perseus appear in it as familiar figures, and usual subjects for artistic treatment. The poem as a whole is distinctly feeble, laboured, and utterly unoriginal. It can hardly have been a production of the author of the *Theogonia*, a work which the Boiotians of Mount Helikôn in the time of Pausanias did not attribute to Hêsiod, to whom indeed they allowed nothing except the *Erga*.

In the *Theogonia*, which presents an extraordinary mixture of Hellenic and Phoenician myth and tradition,[1] and which contains various interpolations, we meet with numerous personages and creatures such as Hêraklês, Perseus, Cheirôn, Pêgasos, the Hydra, and the apple-guarding Serpent (= *Drakôn*), who elsewhere appear as constellation-figures; but the poem is not in any way astronomical or astrological, and the writer has no occasion to introduce such subjects as the Signs. Amongst many difficult passages is the following:—'Êrigeneia bore the star Heôsphoros, and the bright stars with which heaven is crowned' (Vs. 381-2). The poet, in accordance with Homeric usage, applies the epithet Êrigeneia ('the Early-born') to Êôs ('the Dawn'), the natural mother of the Morning-star. But in what possible sense can Dawn be mother of the fixed stars? Here, as in so many other obscure passages in Greek literature, it is probable that the difficulty arises from a commingling of Hellenic and Semitic legend and mythology, and that in a manner not understood by the writer. M. Bérard has shown that Êrigonê (= Êrigeneia), a name of the zodiacal *Virgo*, was 'une traduction populaire d'’Ερυκίνη' (*Cultes Ar.* p. 180), = Sem. Erek-hayîm, the Phoenician goddess of Mount Eryx in Sicily, '*Aschthârth Erek-hayîm* ('Astarte longae vitae auctor'), in origin the Euphratean Istar. She was primarily a lunar goddess, afterwards specially connected with the planet *Venus*, but always chiefly lunar in Suri (Syria) and Phoenicia. Now a lunar Êrigeneia or even an Êrigeneia-Hesperos might fairly be styled the mother, *i.e.*, precursor, of the stars of night, followed by her children.

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[1] *E.g.*, the contest between Kronos, a Phoenician divinity (Vide R. B. Jr., *Sem.* III. xiii.) and Ouranos is taken from the same Semitic sources from which it appears in Sanchouniathôn.

Atlas is a prominent figure in the *Theogonia*. 'Standing at the ends of the earth, by strong necessity he upholds broad heaven with both head and unwearied hands (Vs. 517-9), unmovedly, where Night and Day as they draw nigh are wont to salute one another' (Vs. 748-9). He is the son of Iapetos (= Sem. Yâpheth. Cf. As. *Ippâtu* ,' the White Race.' Vide Lenormant, *Les Origines*, ii. 173; Sayce, *As. Lects.* p. 145) and Klymenê ('the Renowned'), daughter of Ôkeanos, whom Apollodôros (I. ii. 3) calls Asia, a name specially applied in early times to the district around Ephesos. His parentage is thus distinctly Asiatic, and he is sire of Maiê (V. 938; vide *sup.* p. 146). Astraios ('the Starry-one') is made by the poet, somewhat clumsily, the sire of the stars (Vs. 378, 382) a piece of information which tells us nothing. Asteria ('the Starry-one') is made the bride of Persês and mother of the mysterious Hekatê.[1] Several other personages who we shall meet again in the course of the enquiry, are named in the *Theogonia*. Amongst these is Eurynomê (V. 358), daughter of Ôkeanos (Vs. 362-3), who is described in a somewhat doubtful line (V. 908) as 'having a very-lovely form'; but it is noticeable that πολυήρατος was also at times understood as meaning 'deeply-accursed.' This might, from a Greek standpoint, be supposed to refer to the fall and degraded shape of the goddess (Vide *sup.* p. 29).

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[1] As to the Semitic connexion of Hekatê, vide Bérard, *Cultes Ar.* p. 362; R. B. Jr., *Sem.* III. xxii. Mr. Farnell (*Cults*, Vol. II. cap. xvi.) gives many excellent reasons in support of the view that the goddess is not in origin a Greek divinity.

We next come to the *Erga kai Hêmerai* ('Farming business and lucky and unlucky days'). The second branch of the subject, the general treatment of which is thoroughly Babylonian in tone, contains nothing special to our purpose. But the *Erga* has certain well-known references to *Plêïades*, *Hyades*, *Ôrîôn*, *Seirios*, *and Arktouros* (by which *Boôtês* is generally understood) which must next be noticed. 'At the rising of the Atlas-born *Plêïades* begin harvesting, but ploughing when they set. And these assuredly for forty days and nights are hidden, and again as time rolls on they appear when first the sickle is sharpened' (Vs. 383-7). They rise in May and set in November. The snail flies from them (Vs. 571-2). It 'leaves the ground and crawls over the plants, seeking a shelter from the Pleiades in the middle of May (the time of their heliacal rising), then . . . the early harvest must be commenced' (Paley, in loc.). 'When *Plêïades*, *Hyades* and the strength of *Ôrîôn* set, then be mindful of timely ploughing' (Vs. 615-7). 'When the *Plêïades* [poetically regarded as a flock of doves or wild pigeons] fleeing the mighty strength of *Ôrîôn* fall into the murky sea' (Vs. 619-20), then the sailing season is over. This chase of the Pleiads by Ôrîôn was recounted by the Cyclic Poets (Vide Schol. in *Il.* xviii. 486). 'When *Ôrîôn* and *Seirios* shall have come to mid heaven, and Dawn shall have beheld *Arktouros* [at his heliacal rising], then pluck and take home all grape-clusters' (Vs. 609-11), about the 18th of September. 'When the force of the keen sun abates his sweat-causing heat, when all-powerful Zeus sends showers at autumntide . . . then the star *Seirios* comes for a short space in the day time above the heads of men, but obtains more of the night' (Vs. 414-19). The Scholiasts take the absurd view that the Σείριος ἀστὴρ of this passage is the Sun, although the latter has been mentioned just before. At the same time it may be observed that the title *Seirios* ('Scorcher') was at times applied to the Sun. So Hêsychios: Σείριος· ἥλιος, κυνὸς ἀστήρ. The passage 'Seirios parches head and knees' (V. 587), which occurs also in Alkaios, has already been noticed (*Sup.* p. 144). 'Urge your slaves to thresh out the holy corn of Dêmêtêr when first the strength of *Ôrîôn* shall have appeared' (Vs. 597-8), about the 9th of June. 'When after the turning of the sun [= the solstice] Zeus has fulfilled sixty days of winter, then truly the star the *Bear-watcher*, having left the sacred flowing of Ocean, first beaming-brightly rises in the twilight' (ἀκροκνέφαιος, 'at-the-beginning-of-night.' Vs. 564-7). The acronyc rising of a star takes place on the eastern horizon as the sun sets.

We have, then, mentioned in the *Erga* two constellations certainly, the *Clusterers* and *Ôrîôn*; a group of stars which form part of another constellation (the *Bull*), the *Rainy-ones*; and two first magnitude stars (or perhaps two other constellations *Kuôn* and *Boôtês*), the *Scorcher* and the *Bear-watcher*. Hêsiod mentions the stars and constellations to which he has occasion to refer when treating of the various operations of husbandry. But, in his case, as in that of other writers, the extraordinary inference has been drawn that those which he did not mention, he did not know. Will anyone now pretend that he was ignorant, *e.g.*, of the *Great Bear?* Of course not. Then he did not mention it because it was not to his purpose? Just so. And the same remark will apply to other constellation-figures. Even such a writer as the accomplished C. Robert, editor of the *Eratosthenis Catasterismorum Reliquiae*, can say,—'Homeri igitur aetate haec sidera nota fuisse constat: Ursam maiorem, Booten, Orionem, Sirium, Pliadas, Hyadas . . . cetera sidera quo ordine aut quibus temporibus singula Graecis innotuerint, difficillima ac vix enodanda quaestio est' (P. 244). Now, setting aside the fact that the writer makes no reference to Euphratean astronomy in this connexion, this standpoint amusingly shows how frequently literary men are the slaves of books, when what has been written is in reality only one part of the question. For, if anyone will turn on a starry night from the text of Hêsiod to the nocturnal sky, even in our dimmer regions, he will see at a glance that it would be practically impossible to group *Hyades*, *Pleiades* and *Ôrîôn* without also grouping certain other sets of stars. Long ere a formulated and comparatively elaborate system of agriculture star-groups had been observed, even as they are now in regions which possess no agriculture worthy of the name. Had Hêsiod never connected together *e.g.*, the stars of the *Twins* or of the *Scorpion?* He must have done so, even if there had been no Babylonia to supply Hellas with a Zodiac. And it is necessary at various stages in the enquiry to insist on the worthlessness of the argument from silence, because such an extraordinary weight has been attributed to it by various scholars of great attainments, but who have ignored the refined common sense view of the matter, and who were ignorant alike of a correct application of the principles of evidence, and of modern Euphratean discoveries.

Such, then, are the chief instances in which constellation-figures appear in the surviving Greek literature B.C. 350-800, and from this examination we learn :—

1. There is not a tittle of evidence to show that any school of Hellenic mythographers, poets or historians, subsequent to B.C. 800, ever deliberately invented constellation-figures and tacked stories on to them.

2. There is no reason to suppose, that, because a writer did not mention any particular constellation-figure, therefore he was ignorant of it.

3. Eudoxos and the Greeks of the fifth century B.C. were acquainted with the constellation-figures described by Aratos.

4. The constellation-figures are invariably supposed by Greek writers to have come down from a very high antiquity; and it is natural to them to believe that ancient sages such as Palamêdês, Arktînos, Epimenidês, and Mousaios were acquainted with them.

5. The loss of the greater part of the earlier Greek literature and of many important works on astronomy, renders it somewhat difficult to trace the stellar and constellational knowledge of the early Hellenes in minute detail.

6. The following constellations are directly named by the writers quoted :—the *Greater Bear*, the *Lesser Bear*, the *Ploughman*, the *Horse*, the *Dolphin*, the *Lyre*, the *Eagle*, the *Arrow*, the *Bird*, the *Crown*, the *Kneeler* (*Hêraklês*), the *Scorpion*, the *Water-pourer*, the *Clusterers* (even in Aratos a distinct constellation), the *Ram*, the *Archer*, *Ôrîôn*, and the *Dog*. The *Rainy-ones* are mentioned apart from the *Bull*,

and each individual Hyad and Pleiad had received a name. The stars *Scorcher*, *Bear-watcher*, *Goat* (*Aix-Capella*) and *Kids* (*Eriphoi-Hoedi*) also occur. Indirectly we hear of the *Serpent*, *Kêpheus*, *Kassiepeia*, *Andromeda*, *Perseus*, the *Sea-monster*, the *Water-snake*, and those Signs of the Zodiac which are not specifically mentioned. But why should not these, which chance to be omitted, have been as ancient? As C. Robert asks, 'An credi potest Arietem prius quam Perseum aut Cassiepiam inventum esse?'

7. Lastly, there is nothing to negative the belief that the woman-hating sage of Askra was familiar with all, or nearly all, of the primitive constellations of the Greeks.

CHAPTER V.

The Primitive Constellations of the Greeks considered in connexion with the earlier Coin-types.

THERE are few more interesting handmaids to history and archaeological research than the science of Numismatics, which, from the days of Eckhel, has amply received that careful attention it so well deserves. And, ere we ascend higher the mysterious stream of history, it will be well to consider the primitive constellation-figures of the Greeks in connexion with the earlier coin-types, Phoenician, Karthaginian, Kypriot, Lydian, Lykian, Etruscan, and Hellenic. The period covered will be, in the main, that treated of in the previous chapter viz., B.C. 350-800 ; and few Greek coin-types later than B.C. 350 will be referred to. Every numismatist is aware that the Ram, Bull, Lion, Eagle, Dolphin, and various other fishes and birds frequently occur on coins; and it may be at once conceded that such representations are by no means necessarily constellational in character. Whether they are so or not, is a matter of evidence in each case; and, undoubtedly, in many instances, various figures which ultimately were used as constellations found their way on coins and in other branches of ancient art in their pre-constellational character. For as noticed, the *Ram* (Vide *sup.* p. 53) and the other Signs had histories of their own long ere they became associated with particular groups of stars. If, however, we find that figures used as constellations appear on coins, and elsewhere in art, either clearly in a constellational character, or far more frequently than a normal proportion would allow; then we may undoubtedly assume a connexion between the one set of figures and the other, and believe that the State designedly impressed on its coinage forms whose celestial association had already rendered them sacred or semi-sacred.

The following figures, emblems, or symbols, which are also connected with the constellations appear on the extant coinage of Phoenicia:—

I. *Archer.* Described by Gesenius as '*Sagittarius hippo-campo super undas vectus*, infra *Piscis*' (Khilak-Kilikia). The Hippocamp is very like a *Capricorn*, and the combination bears a strong resemblance to *Sagittarius*, *Capricorn*, and *Piscis Australis.* Naked, wearing *pilos*, kneeling (*Engonasin*), and discharging an *Arrow.*

II. *Arrow.* Forming with Club the letter X (Vaga, 'Africae civitas'). The weapons of Hêraklês.

III. *Bird.* An Owl, '*cum flagello et lituo*' (Khilak). 'The Owl on Athenian coinage,' remarks Prof. D'Arcy Thompson, 'is an emblem of great interest, but involved in not a little difficulty. Svoronos takes it, with some hesitation, to correspond to the constellation simply known as Ὄρνις.' But, as the Professor remarks, *Ornis* = *Kyknos* ('the *Swan*'). The constellation-birds are *Eagle*, *Swan*, *Vulture* (= the Lämmergeier, vide R. B. Jr., *The God Tartak*, in the *Academy*, July 20, 1895) in *Lyra*, *Dove* (as connected with the *Pleiades*), and *Crow.* Birds of the *Corvus*-type appear on various Phoenician works of art (Vide a gem figured in Gesenius, *Tab.* xi.), although not to my knowledge on coins. The *Dove* appears on coins of Ashqelûn (Askalôn).

IV. *Bull.* '*Leo Taurum devorans*' (Tarz-Tarsos). Two different types. I am not here concerned with the original signification of this, or of any other, representation referred to; but merely with the fact that a constellation-figure is also a coin-type (Vide *inf. Lion*).

Passant-guardant (Tzur-Tyros). Another Tyrian coin bears a small Bull or Cow *couchant.*

Statant (Salamis, Kypros, B.C. 500). Above, winged disk. The Bull is also a vase ornament at Amathos (Kypros), and in Karthaginian (Vide Perrot, *Hist. of Art in. Ph. and Cyprus*, ii. 82) and Numidian art (Vide Gesen., *Tab.* xxiii., xxv.).

Bull, *salient* (Arvad-Arados), gibbous (Ibid.).

V. *Charioteer.* Driving *quadriga* (uncertain Sikulo-Punic coin). Described by Gesenius as '*Rex Persarum currui insidens ad dextram, ante eum auriga, pone figura stellam manu prae se ferens.* Supra quattuor litterae phoeniciae (Khilak), interpreted as '*sidus meum* (*i.e.*, fortuna mea) *per hanc* (*i.e.* per hoc).' It is quite possible that the king of Persia and some beneficent planet, *Jupiter* or *Venus*, may be referred to. But it is also to be remembered that the type of divine personage seated in four-horse chariot, is thoroughly Euphratean (Vide Lajard, *Culte de Mithra*, Pl. xli., Fig. 3; Cullimore, *Oriental Cylinders*, No. 6); and this type is exactly reproduced in Phoenician art (Vide Perrot, *Hist. of Art in Ph.* i. 210). M. Perrot observes, 'Another object often found in the [Phoenician] cemeteries is a terra-cotta chariot drawn by two or four horses, and occupied by one or more persons' (*Ibid.* 209). This same type also appears in a curious classical instance at Rome, where a charioteer, driving four gryphons[1] arranged in a similar manner, is being crowned by a female figure (Vide Spon, *Recherches curieuses d'Antiquité*, 1683, p. 69). The star behind the chariot may be the famous *Aix-Capella.*

VI. *Crab* (Motyê, Sikelia).

VII. *Crown. Coronam lauream'* (Kossoura). A frequent type. '*Intra coronam lauream tintinnabulum'* (Gaulos). A *Wreath*, apparently of vine-leaves (Tzur).

VIII. *Deltôton* ('The Δ-shaped Figure'). It was no mere arbitrary fancy which connected three stars over the head of the *Ram* with this shape (Vide *sup.* p. 51). The figure is at times also connected with the *Hyades* (Vide Svoronos, p. 107); and, as a *Delta*, with the *Tripod*, which appears on coins of Gaulos.

IX. *Dog.* Tree with Serpent twined round it, between two conical stones; below, *Dog* and Murex (Tzur). Gesenius gives amongst the 'Incerti variarum regionum,' a coin bearing on the reverse a dog-like animal, but possibly a leopard. With head raised; below, Plant (Motyê).

X. *Dolphin.* Female head; in the field, four *Dolphins* (Panormos). Two Dolphins appear as part of the ornament on a Numidian stele (Gesen. *Tab.* xxii.).

Similar type as Panormos (Makara, in Sikelia, also called Minôa, the 'Settlement,' and Hêrakleia). *Dolphin*, and trident (Gadir).

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[1] Vide R. B. Jr., *The Gryphon heraldic and mythological*, in *Archaeologia*, xlviii. A Charioteer and *quadriga* also appear on a Phoenician coin of Syrakousai.

Dolphin; in the field, above, two Kypriot, and below, two Greek letters (Coin of Nikokreôn of Kypros, son of Evagoras I.). 'Evagoras was more Greek than his people. By their writing, arts, religion, manners, the latter were closely allied with Asia' (Perrot, *Hist. of Art in Ph.* ii. 101).

Poseidôn standing, in right hand trident, in left *Dolphin* (Arvad). According to legend, Delphoi had belonged to the god at one time. This type is frequently reproduced in Gk. art.

XI. *Dove.* Female bust, *Dove* standing to right (Ashqelûn). The Askalonian Dove was connected with Semiramis-'Atar'ati (Diod. ii. 4; Loukianos, *Peri tês Syriou The.* xiv.).

Dove, volant (Type on early Kypriot coins). On a Numidian stele a Dove appears near a bunch of Grapes (Vide *inf. Grape-cluster*). Cf. the Pleiad and the Hyads.

XII. *Eagle.* '*Iupiter Aquilam tenens,* in area *spica* (Vide *inf. Ear-of-corn*) *et uva* (Vide *inf. Grape-cluster*. Tarz).

Statant (Motyê).

'*Iupiter . . . super sinistra Aquilam tenens*' (Gesen. Some other Kilikian city).

With Palm-tree (Arvad).

With *Ear-of-corn* and *Club* (Tzur).

With Peacock (Vaga). The Birds of Zeus and Hêra.

With *Serpent* (*Incert. Var. Reg.*).

XIII. *Ear-of-corn* (Vide *sup. Eagle*). The star Gk. *Stachys,* Lat. *Spica,* symbol of Astartê-*Parthenos-Virgo* (Vide R. B. Jr., V.). 'The Virgo of the Zodiac is of course Astarte' (Sayce, in *Trans.* Soc. Bib. Archaeol. iii. 163), 'who carries in her hand the brilliant *Ear-of-corn*' (Arat. *H. D.* 97). This symbol appears on coins of Khilak, Kanaka (Sexti), Juba II., Arvad, Tzur, Belôn, etc.

XIV. *Fish* (not a *Dolphin*). With *Demi-horse* (Panormos), = the first of the two zodiacal *Fish* and *Pêgasos*, a very interesting illustration of the harmony between coin-types and the location of constellations.

Two *Fishes*, on coins of Gadir-Gadeira (Gadês), Sexti, and Abdêra.

One *Fish* (Cf. *Piscis Notius*), on coins of Solous, Gadir, and Sexti.

XV. *Goat.* A frequent Phoenician coin-type (Vide Head, *Coinage of Lydia and Persia*, p. 38). '*Hircus humi cubans*' (Khilak). On a late coin of Vaga a *Capricorn*, his favourite Sign, appears in connexion with the head of Augustus; and on a late coin of Sabratha in connexion with a head of Hermês. But these are Classical introductions. In each case the *Capricorn* has a star between his fore-feet, and above him is the *Cornucopiae*, which was connected with the Zeus-nurturing Kretan Goat Amaltheia (Vide *inf.* p. 221).

XVI. *Gorgon-head.* '*Caput Medusae*' (Motyê). With protruded tongue. This coin-type supplies an interesting link between Phoenicia and the great Perseus-S. George legend.

XVII. *Grape-cluster.* It is an interesting fact that the *Clusterers* (*Pleiades*) are frequently represented in coin-symbolism by a cluster of grapes (*βότρυς*). *Βότρυν γὰρ ἀυτὰς λέγουσιν* (Schol. in *Il.* xviii. 486). M. Svoronos figures 'a very remarkable coin of Mallos in Cilicia, where doves are represented whose bodies are formed of bunches of grapes, the dove-emblem (Vide *sup. Dove*) and the grape-emblem of the Pleiad being here united or intermixed' (D'Arcy Thompson, *Bird and Beast in Anct. Symbolism*, p. 186). Prof. Thompson well points out the connexion between Οἰνάς· εἶδος περιστεράς ἀγρίας (Hêsychios), *οἶνος-wine*, Sem. *yayin*, Gk. *v-oinos*, and the Sem. *younah*, *ionah*, 'dove.' The whole form a commingling of etymological connexion and similarity of sound such as symbolism delights in. The *Grape-cluster* appears on coins of Khilak, Arvad, and Juba II., in the latter instance with 5-rayed star, perhaps the Pleiad.

XVIII. *Hêraklês* (=the *Kneeler*). With *Club* and *Lion-skin*; with *Lion-skin* and *Bow*; with *Club* and *Bow*; holding up *Lion* by the tail (Khilak).

With *Club* and *Lion-skin* at *Altar*; beardless laureate head of (Tzur). '*Caput Herculis imberbe exuviis leonis tectum*' (Sexti).

XIX. *Horse*. With 8-pointed star (Kypros).

Head of; *Demi-horse* with *Fish* (Vide *sup. Fish*); with Palm-tree (Panormos).

Winged (Syrakousai). A Horse also appears on one of the *Incerti Var. Reg.* coins.

The *Winged-horse* occurs on a well-known Hittite seal figured by Wright (*Empire of the Hittites*, Pl. xvi.), Lajard, and others. It was 'familiar to the imaginations of Mesopotamians' (Perrot, *Hist. of Art in Chal. and Assyria*, ii. 171, Vide Fig. 89. 'Winged horse'), and Lykians (Vide *inf.* p. 174). Tarsos was said to have been named from a 'wing' (*ταρσός*) of Pêgasos.

XX. *Lion*. Devouring *Bull* (Vide *sup. Bull*); devouring Stag (Khilak).

Head and fore-paws of; head of; *statant* (Kypros).

In front of Palm-tree (Panormos).

'*Leo gradiens*' (Juba I.).

Walking to r. (Ashqelûn). Ob. Poseidôn-Dagôn, with Trident. The *Lion* is also figured on Karthaginian gems (Vide Gesen. *Tab.* xvi.), and the *Lion-skin*, as noticed, appears with *Hêraklês.*

XXI. *Lyre.* Figured on a coin amongst the *Incerti Var. Regionum.* It is also a Lykian coin-type (Vide *inf.* p. 174).

XXII. *Ram.* *Couchant*, with head to left; *couchant*, with head to right; *Ram's head* (Kypros).

Sheep and lamb; *Ram*, with reverted head (Khilak), like the zodiacal *Aries.*

XXIII. *Serpent.* Twined around Egg; twined around Tree (Tzur), like *Draco.*

Behind *Eagle* (*Incerti Var. Reg.*). The position exactly corresponds with that of the constellations *Aquila* and *Serpens.*

XXIV. *Ship.* The galley appears on coins of Tzur, Tsidôn, Ashqelûn and Khilak. *Argo* as a constellation is often drawn as a demi-ship (Vide Gesen. *Tab.* xxxiv. A. Coin of Tyrus; Head, *Coinage of Lydia and Persia*, pp. 39-42; *Sup.* p. 101).

XXV. *Snake-holder.* As the coin-types seem to have preserved *Draco* and *Serpens* (Vide *Serpent*), so *Serpentarius* is undoubtedly figured on them. The normal type of the coinage of Kossura, 'parva insula cum urbe cognomina inter Libybaeum et Africam sita,' is thus described by Gesenius, '*Cabirus* (*s. Pataecus*) i.e. *nanus deformis succinctus dextra malleum, sinistra plerumque serpentem tenens: capite tribus cornibus s. radiis munito.* This personage is the Phoenician divinity Eschmûn, ἐπιχώριος Φοίνιξ, 'a native Phoenician god,' as Damaskios (*Isidôrou Bios*, ccxlii.) calls him. He says, 'Saduch had children, who are interpreted as the Dioskouroi and Kabeiroi;

and there was an eighth in addition to these—Esmounos, whom they interpret as Asklêpios.' Centuries ere the time of Damaskios, Asklêpios was of course regarded as an 'epichorial' Hellene. A trilingual Inscription of Sardinia (*Corp. Ins. Sem.* cxliii.) renders Eschmûn Merre by Asklêpios and Aescolapeius Merre. His name probably means 'the Eighth' (Ph. *shemônîth*, As. *sumânu*, 'eighth') *i.e.*, of the Kabîrîm ('Great-ones'). It was practically correct to render Eschmûn, who 'had an important sanctuary on the hill of Byrsa' (Lenormant, *Manual of the Anct. Hist. of the East*, ii. 279) at Qarth-hadasth (Carthage) and who was 'the god of healing' (Bunsen, *Egypt's Place*, iv. 236) by Asklêpios, for they were really two different phases of the same original divinity. The descendants of Sydyk 'discovered both the uses of herbs and the cure of poisonous bites, and healing charms' (Sanchou. i. 4); and the protagonist in this good work is Aish-qel, Ἤπιος ('the Kindly'), a beneficent Fire-god identical with Eschmûn, and who was specially revered at Epidauros, so famous for its serpent-cult (Vide *inf.* p. 228), and was there regarded as the constellational *Ophiouchos* (Vide *Katas.* vi.; Hyginus, *Poet. Astron.* ii. 14; Schol. German. in voc.).

The above list is illustrative merely, and has no pretensions to be exhaustive. Moreover, I have not included in it any human figures except Hêraklês, although some of the personages represented may perhaps be connected with the constellations; for Kêpheus, Kassiepeia, and Andromeda, as well as Perseus, were Phoenician divinities (Vide *sup.* pp. 30, 37-40, 49). Nor have I separately included such a common object as an Altar, which appears, but probably without any connexion with the constellation *Ara*. And, yet, it is evident at a glance, that there is a very remarkable affinity and similarity between the primitive Hellenic constellation-figures and Phoenician coin-types. If it be objected that some of the Phoenician coins belong to the period of Greek or Roman supremacy, I answer that the coin-types do not. A careless investigator might hastily assert that Phoenicia borrowed *e.g.*, the Eagle from Classical sources. But when we turn to Euphratean Star-lists, we find that there, as in the Hipparcho-Ptolemy List, the Eagle appears (Vide *sup.* p. 45); and was as familiar in its stellar character to the East as to the West.

As the Phoenicians and Karthaginians, during their earlier periods of ascendency in the Midland Sea came much in contact with the Etruscans, at times as rivals, at times as allies; and as Etruria was ever quick to borrow the arts of Hellas and the East, I will next illustrate the connexion between the constellation-figures and Etruscan coin-types. The original coins, or most of them, are in the Kircherian Museum at Rome.

I. *Bird.* Of uncertain kind, a *Dove* or *Crow* probably. Figured on a weight. The original connexion between coins and weights is a very close one. The Owl (Vide *sup.* p. 162) also appears at times; it has been supposed by some to be a type of the nocturnal heaven or of night voyages.

II. *Bowl.* Generally the κάνθαρος or *diota*, particularly connected with Dionysos.

III. *Bull.* Head of.

IV. *Club* (Vide *inf. Hêraklês*). A frequent type, combined with pellets or stars.

V. *Crab.* Figured on a weight (Vide *sup. Bird*).

VI. *Dog.* Sleeping; below, crescent moon; sleeping, another type; greyhound.

VII. *Dolphin.* Above four pellets; two *Dolphins* between two Trident-heads.

VIII. *Eagle.* With raised right foot, a very fine type.

IX. *Ear-of-corn.* Alone; with *Cornucopiae, Grape-cluster*, and vine-leaf.

X. *Fish.* Apparently a skate; another type.

XI. *Grape-cluster.* Reverse a star or pellet, probably the Pleiad; with *Ear-of-corn*, etc.

XII. *Hêraklês* (Vide *sup. Club*). Beardless, with cap of lion's skin, the paws tied under his chin; another type of same, fine face; a third type of same.

XIII. *Horse.* Head of; another type, fine head with flowing mane; a third type of same, possibly intended for head of a *Sea-horse;* a fourth type of same with two pellets or stars; horse, prancing; above, an 8-rayed star; horse, winged, exact *Pêgasos*-type.

XIV. *Lion.* Head of, *affronté*, with short sword in mouth.

XV. *Lyre.* Three-stringed; in the field, crescent-moon.

XVI. *Ship.* Prow of. Cf. the Demi-*Argo* (Vide *sup.* p. 168).

XVII. *Tortoise*, in the field, two pellets or stars. A very interesting type (Vide *inf.* p. 209).

XVIII. *Twins.* Two naked male figures, each with an arm behind the other's back, the general attitude resembling that of the Dioskouroi, *Gemini*. It is to be remarked that the idea of the *Didymoi* is exactly carried out by the Janiform head, a frequent type on these coins.

XIX. *Water-snake* or *Sea-monster*. Head of, with crest. Sometimes absurdly called a cock's head, although the Cock is quite correctly figured on the coins. This design is on the reverse of the *Tortoise*-coin.

The Etruscan coins also show several other very interesting types connected with the East, such as the Bee, Hand (perpendicularly outstretched showing the palm), and Gryphon, all Euphratean symbols; the Boar and Triquetra, figures particularly connected with Lykia; and the Caduceus, 'which is no uncommon object on Carthaginian steles' (Perrot, *Hist. of Art in Ph.* ii. 67. Vide Fig. 62. 'Stele from Adrumetum,' showing Caduceus). The Gryphon also appears on Phoenician and Lykian coins and on Kypriot cylinders. Such instances further illustrate the Oriental character and origin of early coin-types.

Passing on to the coins of Lykia we meet with the following types, amongst others:—

I. *Archer*. Crowned figure with bow and quiver. Perhaps akin to the famous Persian gold daric of Dârayavaush Vishtâspa (Dareios Hystaspês), which showed the king crowned, clad in the Persian *kandys*, kneeling on one knee, holding spear and bow, and at his back a quiver. Such a type, like all the others, is not a merely arbitrary device or fancy, but is connected with a sacred past. Centuries earlier the Euphratean Sun-god, prototype of the *Archer* and his reduplication the *Centaur*, had carried bow and arrow; and without further pursuing the matter at this point, it will be obvious that originally the Archer of the coin-type and the Archer of the

Zodiac may be variant phases of a common original.

II. *Bull.* Two Demi-bulls addorsed. The *Tauros* of Aratos is a Demi-bull.

Demi-bull, facing left; with *Demi-horse*, facing right.

Devoured by *Lion.*

Butting to the left.

Winged and human-headed, walking to the right. (Vide *inf.* p. 176).

Bull or Calf, *statant.*

Demi-bull, *salient*, facing right, with bent fore-legs. The *Bull's* 'crouching legs' are specially noticed by Aratos (*H. D.* 517).

Demi-bull, facing left; the same, another type.

III. *Dolphin.* To left, above an oval object.

Three *Dolphins*, two different types; two *Dolphins*, two different types.

IV. *Eagle.* Within a sunk beaded square.

V. *Fish.* Within a sunk square, with Triquetra.

VI. *Goat.* Ibex, *statant*, facing right.

Head of, the exact *Capricorn-type*, above which a *Winged-horse.*

Demi-goat, facing right.

Salient, facing left.

VII. *Hêraklês.* With left foot raised, *Lion-skin*, *Club* and *Bow.*

With *Club* upraised to strike, *Lion-skin* on head and falling down back.

Standing with reverted head, *Club* in right hand, Tripod (*Vide sup.* p. 164 *Deltôton*) in left, wearing *Lion-skin.* Cf. the legend of Hêraklês carrying away the Delphic Tripod (Vide R. B. Jr., *Sem.* pp. 97, 196).

VIII. *Horse.* Demi-horse (Vide *sup. Bull*).

Walking to left; above Triquetra.

Winged-horse, facing to the right.

Winged-horse, *salient*, facing to the left; the same facing to the right. Lykia is specially connected with the *Pêgasos*.

IX. *Lion.* A protagonistic type (Vide *sup. Hêraklês*).

Winged, walking to the right.

Scalp of head of. Numerous examples.

Face of, in profile, with open mouth, two types.

Devouring *Bull* (Vide *sup. Bull*).

Walking to the right, with reverted head.

Demi-lion, winged.

X. *Lyre.* Within a square. XI. *Tortoise* (Vide *inf. Aigîna*).

Here again, the constellation-figures are amply represented on the coinage. Many simply fatuous explanations of coin-types have been given, *e.g.*, 'the cattle of various kinds may be of the pastoral valleys, and those being devoured by lions the incidents of their neighbourhood; but it is in vain to attempt to account for the varied devices.' Quite in vain on such lines as these. Local features, as of course, constantly reappear on coinage; but they are almost invariably blended and harmonized with figures and symbols connected with an external civilization.

'The first gold coins were issued by the kings of Lydia, and the first silver money by Pheidon in Aegina' (Perrot, *Hist. of Art in Phrygia, Lydia, Caria, and Lycia*, p. 253). Electrum, which 'was composed of about three parts of gold and one part of silver' (Head, *The Coinage of Lydia and Persia*, p. 8), was also used by the Lydian monarchs. On the earliest coins the Obverse is plain, whilst the Reverse bears several 'incuse depressions' and sometimes a Fox 'running left,' which Lenormant well conjectures to be 'a symbol of the Lydian Dionysos, whose name Bassareus may be connected with the word Bassara or Bassaris, a Fox' (*Ibid.* p. 12). The Lydians did not merely choose the animal as a coin-type because they chanced to be familiar with it. We then meet with the following types:—

'Fore-parts of *Lion* and *Bull* turned away from each other and joined by their necks.'

Lion's head with open mouth.

Lion recumbent, with reverted head.

Demi-lion and *Demi-bull*, *affronté*.

The fore-parts of *Lion* and *Bull* form the 'one invariable device' of Kroisos. Thus, in all early non-Hellenic systems of coinage we find devices similar to the constellation figures, and that not here or there but in great numbers. Nor are these forms by any means confined to figures such as a Lion or a Bull, which it has been said again and again, though without the slightest proof, were chosen as coin-types simply because they were familiar animals in this or that locality.

The devices include forms altogether unfamiliar, such as a *Pêgasos* and an *Ophiouchos*. And when we pass from these non-Hellenic systems to consider the immense mass of Greek coinage which has come down to us, the prevalence of types similar to, or connected with those of, the constellation-figures is simply extraordinary. We need not tentatively or hesitatingly suggest a connexion; the facts speak for themselves with overwhelming significance. To give all the instances in illustration would be to enumerate half the Greek coinage. I therefore merely select the following specimens:—

I. *Mysia.*

1. *Apollônia.* *Gorgon-head* (Vide *sup.* p. 166).

2. *Atarneus.* *Demi-horse* r.; above, *Serpent.*
Demi-horse.

3. *Gambrion.* *Demi-bull*, butting r.
Bull, butting l.; above, Star.
Tripod (Vide *sup.* p. 173).

4. *Hadrianothera.* *Bear's* head (Vide *inf.* p. 265).

5. *Iolla.* *Demi-horse*, winged r.
Ear-of-corn.

6. *Kyzikos.* This famous city, connected by colonization with Milêtos, which latter place is said to have been founded by Kretans, stood upon the 'Island of the Bears' ("Αρκτων νῆσος), a name not without a constellational connexion (Vide Bachofen, *Der Baer in den Religionen des Alterthums*, 1863, p. 11); and possessed a coinage, commencing in the seventh century B.C., which shows a truly remarkable number of constellation-figures. Amongst its other coin-types are:—

Bowl. Bakchic *kantharos.*

Bull. Stepping to r.; below, a *Tunny* (Vide *inf. Fish*). Leake remarks, 'Cyzicene staters, bearing the figure of a bull, . . . their antiquity being greater than that of Cyzicene staters with other types, appear to have given rise to the proverbial saying of the Athenians on purchased silence, *βοῦς ἐπὶ γλώσσε βέβηκεν*' (*Numis. Hellen.* in voc. *Cyzicus*: vide Aischylos, *Ag.* 36). Also *Bull*, walking, butting, kneeling, winged. *Bucranium*, filleted.

Charioteer. Erichthonios (Vide *Katas.* xiii.) presented to Athêna.

Crab, holding head of *Fish* in claws.

Dog. Statant l., r. fore-paw raised; beneath, *Tunny.*

Twy-headed, *statant*, with tail ending in head of serpent. A very curious and interesting figure. The twy-headed dog with serpentine body appears on the Euphratean Boundary-stones (Vide R. B. Jr., *H.D.* Fig. 64), and was 'an emblem of the god Tutu' (St. Chad Boscawen, in Lacouperie, *Western Origin of the Early Chinese Civilization*, p. 81) or Tu, a death-god (*W. A. I.* III. lxvii. 21). Mr. W. Wroth calls this dog Kerberos.

Dolphin. Beneath, *Tunny.*

Bearing female figure; bearing youthful male figure (Palaimôn, vide *inf.* p. 238).

On r. hand of Poseidôn, = *Πόσις-Ἴτωνος*, 'Lord-of-the-isle-of-Tan,' *i.e.*, Krêtê (Vide R. B. Jr., *O. N. C.*, p. 5; *Sem.* III. xv.).

Eagle. Head of, with *Tunny* in beak.

Two, with closed wings facing one another, on *omphalos* of Delphoi.

Fish. The protagonistic type of the city is the *Tunny* (Vide *sup. Bull*, *Crab*, *Dog*, *Dolphin*, *Eagle*), and we find from Schol. Arat. *Phainom.* 242, that the *Northern* of the two zodiacal *Fish* Χαλδαῖοι καλοῦσιν Ἰχθὺν χελιδονίαν. The *Chelidonias* was a kind of *Tunny.* I do not suggest (and this principle holds good in many similar instances) that the people of Kyzikos stamped their coins with a tunny merely because they knew it as a zodiacal Sign; but their fishing industry harmonized in the matter with their constellational knowledge, and jointly contributed to this particular selection of type. Besides the previous instances we meet with (1) *Tunny*, upright between two fillets; (2) Head of *Fish*; (3) Two *Fish*-

heads; (4) Tail of *Tunny* within circle; (5) Head of *Fish*, *l.*; above, tail of *Fish*, r.; (6) Athêna; beneath, *Tunny*; (7) Naked male figure, with body ending in fish's tail, *i.e.*, the archaic Philistine, Phoenician and Kretan Poseidôn; beneath, *Tunny*, l.; (8) Winged female figure, holding *Tunny* in right hand. As figures of the archaic Poseidôn are often doubtfully called 'Tritons,' so this female figure is doubtfully described as 'Nike.' It is more probably a form derived from the Phoenician Andromeda, a constellation-figure which adjoins the *Tunny* (Vide *inf. Goat*, *Hêraklês*, *Horse*, *Lion*, *Ram*). The Tunny is specially connected in art with Poseidôn (Vide Athen. viii. 36). And in illustration of the fact that the zodiacal *Pisces* were tunnies, we find in the Ducal Palace at Venice, Jupiter 'represented in his houses Sagittarius and Pisces . . . raises his sceptre in his left hand over Sagittarius, represented as the centaur Chiron; and holds two thunnies in his right' (Ruskin, *Stories of Venice*, ii. 353).

Goat. Head of, l.; behind, *Tunny*.

Hêraklês. Bearded (the Gilgames type), naked, 'kneeling on one knee' (= *Engonasin*), with *Club*, *Bow* and two *Arrows*; behind, *Tunny*.

Bearded, naked, kneeling on one knee, holds *Tunny* by tail.

Head of, bearded, wearing *Lion-skin*; beneath, *Tunny*.

Naked, kneeling, with *Club*, *Lion-skin* on left arm; beneath, *Tunny*.

Naked, kneeling, strangling Nemean *Lion*; beneath, *Tunny*.

Horse. 'Pegasus,' with pointed wing, flying r.; beneath, *Tunny*.

Lion (Vide *Hêraklês*). Scalp of, *affronté*; beneath, *Tunny*.

Lioness, head of; in field r. *Tunny*.

Seated, r. fore-paw raised, mouth open; beneath. *Tunny*.

Preparing to devour prey; beneath, *Tunny*.

Demi-lion, devouring prey; behind, *Tunny*.

Head of, mouth open.

Ram. Standing, kneeling; beneath, *Tunny*.

Scorpion. In small incuse square.

Tripod (Vide *sup*. p. 51). Above which, radiate disk; beneath, *Tunny*.

In addition to these types we meet with the Chimaira (connected with *Pêgasos*), the Cock, Boar, and Gryphon (as on Etruscan coins), the Fox (Vide *sup*. p. 175), Apollôn with *Lyre*, the Corn-wreath and the Oak-wreath (= the *Crown*), the Sphinx, Dionysos (Vide *inf*. p. 186), and Satyrs. Another type shows 'Harmodius and Aristogeiton,' who are certainly excellent representatives of the *Twins*. A Satyr pouring wine from jar into *kantharos* cannot be considered as a symbol of *Aquarius*; but, with this exception, every Sign of the Zodiac, as well as many other constellation-figures, are practically represented on the coins of this single city. A coin of the earlier Imperial period bears the *Lyre*.

7. *Lampsakos*. A Phoenician name, meaning 'the Passage'—across the Hellespont. The coins of this city show the *Bowl*, *Club*, *Ear-of-Corn*, *Dolphin* and *Grape-cluster*. The *Lyre* occurs after B.C. 190. We also find :—

Harpê. 'The scimitar with which Merodach is armed is shown by the cylinders and bas-reliefs to have been of the shape of a sickle, and is therefore the same as the *harpê* or *khereb* with which Perseus was armed when he went forth to fight against the dragon of the sea [*Kêtos*] at Joppa' (Smith and Sayce, *Chal. Ac. Gen.* p. 113; vide Pherekŷdês, *Frag.* xxvi.). We have already met the Perseus myth in Mysian coinage (Vide *sup. Apollônia*). The Eg. *kurp* is a 'loan-word from Canaanite *khereb*' (Hommel, *Anct. Heb. Trad.* p. 112, note).

Horse. Demi and winged. The *Pêgasos*, the protagonistic type of the city, is found from B.C. 500.

The Janiform-head and the Bee are met with, as in the Etruscan coinage.

8. *Milêtopolis. Bull.* A curious type of the city is the Double-bodied Owl, *affronté.*

9. *Parion.* A noted seat of the cult of Dionysos:—

Altar. 'The great altar of Parium,' lighted (Vide Strabo, X. v. 7; XIII. i. 13).

With *Amphora* in front of it. It is to be remembered that in Euphratean art, as also at times elsewhere, *Aquarius* is represented by an *Urn* or *Jar*, in accordance with the familiar symbolic principle of a part for the whole. Not merely was the constellation *Ara* of great importance (Vide Arat. *Phainom.* 403-435), but the *Altar* was the original seventh zodiacal constellation, afterwards superseded by the *Claws* (of the *Scorpion*), and subsequently by the *Balance*, a Sign of Egyptian origin (Vide *sup.* pp. 67-71; *II. D.* p. 44). Without asserting that the Parionic Altar was in origin zodiacal or constellational, its presence with those of other constellation-figures is noticeable.

Bull. *Statant* l., with reverted head; beneath, *Bucranium.*

Same type; beneath, *Club.*

Same type; above, *Dolphin.*

Same type; above, *Bowl* (*Patera*).

Same type; beneath, *Ear-of-corn.*

Same type; beneath, *Grape-cluster.* A probable combination of *Taurus* and *Pleiades* (Vide *sup.* p. 166).

Same type; beneath, Star.

Same type; beneath, *Wreath.*

Butting; above, *Grape-cluster.* An interesting type, with lowered head and bent r. fore-leg, in the *Taurus* attitude.

Gorgon-head. A protagonistic type. In one instance the *Harpê* (Vide *sup.* p. 179) appears to occur on the Rev.

10. *Plakiê.* *Bull.* Walking r.

Lion. Head of r.

Devouring prey; beneath, *Ear-of-corn* (Vide *sup.* p. 65). A symbol connected with Kybelê, as ἡ Μήτηρ Πλακιανή.

11. *Priâpos.* Types occurring here are (1) Head of Dionysos, wearing ivy-wreath. The *Corona Borealis* is connected with the god, the traditional inventor of crowns (Vide *sup.* p. 32); (2) *Bull's head;* (3) *Grape-cluster;* and (4) *Serpent.*

12. *Prokonnêsos.* *Dove* r.; behind, *Dolphin.*

I have described the Mysian coinage with some particularity in order to show as clearly as possible the extraordinary frequency of constellation-figures as coin-types, but shall allude more briefly to the coinage of various other localities. I do not intend to imply that the types mentioned were the only types employed by the different cities.

II. *Troas.*

1. *Abydos. Club, Eagle* (a leading type) with Star, *Ear-of-corn, Grape-cluster, Dolphin, Lyre, Ram's head, Tripod, Wreath.*

2. *Alexandria Troas. Ear-of-corn, Horse, Lyre.*

3. *Antandros. Goat, Grape-cluster, Lion's head.*

4. *Assos. Bird,* probably *Swan;* the same, *volant* (*Cf. Ornis-Kyknos*); *Bull's head, Grape-cluster, Ear-of-corn, Lion's head.* The Gryphon was an archaic coin-type of this place.

5. *Birytis. Club, Wreath.* Another type was a bearded male head, probably one of the Kabîrîm (Wroth).

6. *Gargara. Bull, Club, Ear-of-Corn, Grape-cluster, Horse.*

7. *Hamaxitos. Lyre.*

8. *Kebrênê. Eagle, Ram's head* (protagonistic type).

9. *Lampônia.* Bearded Dionysos, a god called Taurogenês, Taurokerôs, Taurometôpos, Tauromorphos, Taurophagos, Taurophuês, and Taurôpos; Rev. *Bull's head* and *Bowl.*

10. *Neandria. Horse, Ram.*

11. *Skamandria. Grape-cluster.*

12. *Tenedos. Bowl, Grape-cluster, Lyre, Tripod.* The protagonistic type of the island is Janiform head of archaic style, fem. head l., bearded male head r. Rev. Double-axe, = Dionysos Dimorphos and Diphuês, whose weapon is the πέλεκυς (Vide R. B. Jr., *G. D. M.* i. 332 *et seq. Dionysos Pelekys*).

III. *Aiolis.*

1. *Aigaiai. Goat's head; Demi-goat.* Rev. Head of Dionysos.

2. *Boiônê. Bull, statant.*

3. *Kymê.* Of Amazonian, *i.e.*, Hittite, foundation. *Demi-horse* (7th Cent. B.C.), *Eagle's head*, *Eagle*, *Ear-of-Corn*.

4. *Larissa Phrykônis.* *Grape-cluster*, *Urn.*

5. *Temnos.* *Grape-cluster.*

IV. *Lesbos.* *Bull*, butting; *Calf*, head of; *Eagle*, *Goat*, *Gorgon's head*, *Hêraklês*, *Lion's head*, scalp; *Lion*, winged; *Ram's head*, *Serpent*, *Tripod.*

1. *Antissê.* *Bull*, *Club*, *Grape-cluster.*

2. *Eresos.* *Ear-of-corn*, *Grape-cluster.*

3. *Mêthymna.* *Dolphin*, *Grape-cluster*, *Horse*, demi, winged; *Lion's head*, *Lyre*, *Bowl* (*Kantharos*), *Wreath.*

4. *Mytilênê.* *Bull's head*, *Calf's head*, *Dolphin*, *Eagle's head*, *Ear-of-corn*, *Lion*, *Lion's head*, *Ram's head*, *Serpent.*

5. *Pyrrha.* *Goat.*

6. *Nêsos* (Island near Lesbos). *Dolphin*, *Lyre*, *Tripod.*

7. *Pordosilênê* (Do.). *Dolphin*, *Lyre.*

Stars of different types frequently appear on the coins. Such, without taking into account any human figure except Hêraklês, is the general result of a very brief examination of some of the Greek coin-types of Mysia, using that name in its larger sense.

V. *Iônia.* Unattributed early electrum coins:—*Ram's head*, archaic human head of *Goat*-like aspect, *Demi-goat*, *Goat's head*, *Crab*, *Scorpion*, *Eagle volant*, *Eagle* and *Hare*, *Horse*, *Horse's head*, *Demi-bull* *Lion's head*, *Tunny*, *Centaur*, *Tortoise*, and *Gorgon-head.*

Ephesos, of Amazonian, *i.e.*, Hittite foundation (Vide Sayce, *Herod.* p. 430), is the only important city we have yet met with whose coins bear no constellation-figures. Ephesia Polymastos, called by the puzzled Hellenes Artemis, is the Hittite 'Atar'ati (Atargatis) of Gargamis (Karchemish), and her coin-types are the Bee and Stag, both Euphratean symbols, and the latter the name of a Euphratean star or constellation (*W. A. I.* II. xlix. No. 4, l. 42). The Bee (Vide R. B. Jr., *G. D. M.* i. 401), connected with the Bull, the Moon, the Soul, and also a Mithraic symbol (Vide Evans, in *Archaeologia*, xlviii. 23), appears on the Euphratean cylinders (Vide Cullimore, *Oriental Cylinders*, Figs. 117, 129).

1. *Erythrai*. The plural termination shows, as usual, that the 'Red' or 'Scarlet' (Cf. king Porphyriôn, the 'Purple'-man, who represents the Phoenician element in the founding of Athênai, Paus. I. xiv. 7) town was a joint foundation of several races. The mythic founder Erythros (the 'Red'), son of Rhadamanthos (= Eg. Rhot-amenti, 'King-of-the-West') = Asar-Osiris, whose name had reached Krêtê, is primarily a solar-figure, the colonizing Sun-god, under whose banner a combination of Kretans (themselves an utterly mixed population), Karians, and Lykians founded Erythrai. The instance is a typical one, and accounts for the extraordinary mixture of Semitic, Aryan, and even Turanian (using that word in a covering sense) religious ideas and ritual, which we constantly meet with in this part of the world. The same city will bear on its coins the images of divinities purely Hellenic, and also of divinities absolutely non-Aryan. It has often been supposed that because one is Hellenic, another, on coins of the same place,

must be so too; or, conversely, that both must be Semitic. Neither supposition is necessarily correct. Amongst the coin-types of Erythrai are :—

Bowl. The Bacchic *kantharos.* The head of Dionysos appears on coins B.C. 300-200.

Bull. Head of. Rev. Stellate flower.

Hêraklês. A prominent type. Young, with *Lion*-skin and *Club;* Bearded, with *Lion*-skin. Young, in *Lion*-skin; Rev. *Club* and *Bow* in case. Also Rev. *Tripod.*

Horse. Walking. 'Pegasos with curled wing flying.'

Besides the Stellate flower we meet with a Star, also with the Bee. Another type shows a male naked figure (unidentified) on horse.

2. *Klazomenai. Bowl*, *Club*, *Gorgon-head*, *Ram's head*, *Ram* recumbent, *Ram* walking, *Demi-ram; Swan*, *statant* with flapping wings, pluming breast, etc. A protagonistic type.

3. *Kolophôn*, *Demi-horse*, *Horse*, *Lyre*, *Tripod.*

4. *Leukê. Lion*, *statant; Swan*, *statant* with flapping wings; *Swan's head.*

5. *Magnêsia pros Maiandrô. Eagle*, *Demi-bull*, butting; *Gibbous-bull*, butting, the exact *Taurus*-type; *Ear-of-corn.*

6. *Milêtos. Lion*, looking at 8-rayed star; With open jaws; *Demi-lion.* The lion-type begins about B.C. 700.

7. *Naulochos. Dolphin.* A natural symbol at a 'Place-where-ships-can-anchor.' 'The dolphin has two principal meanings in Greek symbolism. It means, first, the sea [Hence the connexion with Poseidôn and sea-crossing divinities.]; secondarily, the ascending and descending course of any of the

heavenly bodies from one sea horizon to another' (Ruskin, *Queen of the Air*, i. 39). Hence the connexion with the solar and sea-crossing Dionysos, Palaimôn, etc. (Vide *sup.* p. 46).

8. *Phokaia.* *Bull*, man-headed. Prototype the Euphratean winged, man-headed Bull, representing a Power combining the potentialities of man and beast.

Bull's head, Lion's head, Ram's head, Demi-bull.

Omphalê, wearing *Lion's* skin; behind, *Club*; below, Seal, this last type arising from play on words (φώκη). Other types are head of Dionysos and Gryphon.

9. *Phygela.* Near Ephesos. *Bull*, butting.

10. *Smyrna* (Old). *Lion's* head. Before B.C. 585.

11. *Teôs.* 'The full title of Dionysos as the god of Teos was ὁ τῆς πόλεως θεὸς Διόνυσος' (Head, p. 317) = Melqârth ('King-of-the-City), Melikertês. Besides the head of Dionysos, the Gryphon (a protagonistic type), and the Bee, we find :—

The *Bowl*, *Club*, *Grape-cluster*, *Horse* (*Demi-Pêgasos*), *Lioness*, *Lyre*, and *Ram's head.*

12. *Chios.* *Urn* (*Amphoreus*, a symbol of Dionysos, as at Thêbai), *Crown* (Ivy- or Vine-wreath), *Dolphin*, *Grape-cluster.* The normal type is the Androsphinx. The Phoenicians copied both the Euphratean and Egyptian forms of the Sphinx, which also frequently appears in Kypriote art, on gems, seals, etc.

13. *Ikaria.* *Bull*, butting; *Grape-cluster.*

14. *Samos.* A Ph. name meaning 'the Lofty.' Cf. Samothrakê. The coinage begins cir. B.C. 700 :—

Bird. Above *Bull.*

Bull. Demi; Head of; Demi, with bent r. leg.

Dolphin. *Hêraklês.* Infant, strangling two *Serpents.*

Lion. Head of; Scalp of; *Lioness*, head of.

Ram. Head of; Heads of two.

Ship. Prow of. *Urn* (*Amphoreus*).

The Gryphon is also a type.

VI. *Doris* (Asia Minor).

1. *Halikarnassos.* *Gorgon-head*, Poseidôn and *Dolphins*, *Demi-winged-horse*, *Demi-goat*, *Lyre*, and *Tripod.*

2. *Knidos.* A special seat of the cult of Astartê-Aphrodîtê:—*Bull*, head of; *Dove*; *Grape-cluster*; *Demi-lion*; *Lion*, head of; *Hêraklês*, infant.

3. *Kôs.* *Club*, *Crab*, *Hêraklês*, in lion's scalp; *Lyre*, *Serpent* of Asklêpios, *Tripod.*

4. *Rhodos.* Ordinary type, Hêlios and the Rose. Also *Bull's head*, *Club*, *Dolphin*, *Eagle*, *Ear-of-Corn*, *Grape-cluster*, *Demi-winged-horse*, *Lion's head*, *Prow*, *Tripod*, *Urn.*

5. *Karpathos.* *Dolphins* (Phoenician Standard, sixth century B.C.).

VII. *Krêtê.*

1. *Aptera.* *Bow.* The Ob. bears the head of a goddess called, for want of a better name, 'the Artemis of Aptera.' In the abstract Bow and Arrow are equally connected with any Sun-god or Moon-goddess; with the Phoenician Hêraklês as well as with the Hellenic Apollôn; with Istar-Astartê as well as with Artemis, whose name is often conveniently applied to many nondescript non-Hellenic goddesses.

2. *Arsinoê.* Two *Dolphins.*

3. *Axos.* *Tripod.*

4. *Chersonêsos.* *Eagle*, *Hêraklês*, with *Club* and *Lion*-skin; *Lyre*, *Prow* of ship.

5. *Elyros.* *Arrow-head*, *Goat's-head*, Bee.

6. *Gortyna.* *Bull* and Eurôpê, *Dolphin*, *Eagle's head*, *Lion's* scalp.

7. *Hierapytnê.* *Eagle.*

8. *Hyrtakinê.* *Arrow-head*, *Goat's head*, Bee.

9. *Itanos.* 'Le nom d'un dieu *Tân* se trouve en composition dans celui d'Itanos de Crète. Les plus anciennes monnaies de cette île représentent le dieu Tân comme un personnage à queue de poisson, tenant le trident de Neptune; au revers est représenté le monstre marin *tannîn* et sa femelle' (Lenormant, *Les Origines*, i. 545, n. 2). Itônos, a variant of the name, appears as the husband of Melanippê ('Black-horse,' = the black Dêmêtêr Hippia, = Astartê, vide Bérard, *Cultes Ar.* p. 114) and sire of Boiôtos (Paus. IX. i. 1), *i.e.*, the inhabitants of Boiôtia.

Poseidôn (Vide *sup.* pp. 42, 177), at times wrongly called 'Glaukos,' 'with an object held in r. hand, his l. hand raised (holding fish?).' He appears as a human figure to the waist with a fish's tail, like the archaic Poseidôn-figure now in the Museum of the Akropolis at Athens. Rev. Star.

Similar figure, holding trident in r. hand and *Fish* in l. Poseidôn is identical with the Philistine Dagôn, and his consort is Eurynomê (Vide *sup.* p. 29)-Derketô. Poseidôn-Dagôn appears on the coins of Ashqelûn and Arvad (Vide Babelon, *Monnaies des Perses Achém.* Pl. viii. No. 3; Pl. xxii. No. 1). Dagôn is merely the Euphratean Êa ('Water-house'), the 'Aὸς of Damaskios, the 'Ωῆς of Helladios, the 'Ωάννης of Bêrôsos, which last name is explained by Lenormant as Êa-khan ('Êa the-Fish') and by

Lacouperie as from a reading *A-e-anu*, viz. *Anu*-Êa ('the god Êa') read reversely (Cf. Xasis-adra and Adra-xasis; *gibil-bilgi*, etc.). The Akkadian god-name Dagan means 'the Exalted-one' (Ak. *da*, 'summit' + *gan*, 'the participle of the substantive verb.' Sayce). Various Semitic etymologies were subsequently attached to the word, such as *dâgân*, 'corn' (Sanchou. i. 5) and *dag*, 'fish.' The cult of the primeval Fish-god of Lower Babylonia passed westwards to the Phoenician sea-board and thence to Hellas, island and continental (Vide R. B. Jr., *Sem.* III. ix., xiv., xv.).

'Similar type; the trident striking fish.' Rev. Two *Sea-monsters*, in some instances crested, facing each other. Here we meet with *Kêtos*.

Eagle, 8-rayed Star.

10. *Knôsos*. *Arrow-head*, *Bull's head* and star. Also 8-rayed Star. Ordinary type, the Labyrinth.

11. *Kydônia*. Naked male figure with *Bow* and *Dog*.

Dog suckling infant.

Same type; above *Dog*, a Star. Also *Dog*, seated.

Bucranium.

Urn, with pendent *Grape-clusters*.

12. *Lyttos*. *Eagle*, flying; standing.

13. *Naxos*. *Tripod*.

14. *Olos*. Ob. Head of Britomartis, 'quod sermone nostro sonat virginem dulcem' (Solinus, xi. 8), Diktynna (the 'Net'-goddess), Aphroditê of the Net (*Od.* viii.), a phase of Eurynomê, and whose Kretan name is a translation of the Sem. *Ast-No'emâ* (Gk. Astynomê). Rev. *Dolphin*.

15. *Phaistos.* Eurôpê on *Bull.* Rev. *Lion's* scalp.

Hêraklês with *Club* and *Bow*, *Lion*-skin in field; Rev. *Bull's head.*

Bull, feeding, his l. fore-foot hobbled.

Hêraklês, striking with *Club* in r. hand at *Serpent*, *Bow* in l.; Rev. *Bull.*

Hêraklês, striking with *Club* in r. hand at *Hydra*, at his feet *Crab*, over his l. arm *Lion*-skin (Vide *sup.* p. 145). Rev. *Bull.*

Similar type, without *Crab.*

Bull, walking, butting, butting within *Wreath.*

Dog. 'On the scent.'

16. *Phalasarna.* *Dolphin.* Also head of Diktynna. Rev. Trident.

17. *Polyrrhênia.* Head of Diktynna. Rev. *Bull's head.*

Bull's head. Rev. *Arrow-head.*

18. *Praisos.* *Bull*, head of; butting.

Eagle, statant, with raised wings; flying.

Goat, demi; behind, *Arrow-head.* Cf. *Aigokerôs and Oïstos.*

Head of, within *Wreath.*

19. *Priansos.* Poseidôn standing, in r. hand *Dolphin*, in l. Trident.

Female figure with *Serpent.*

Dolphin, with *Rudder*, and Date-palm.

'*Pegasos*' on helmet of Athêna.

20. *Rhaukos.* Poseidôn, naked, leading *Horse*, and holding Trident.

Poseidôn, bearded; Rev. Two *Dolphins*, between them, Trident.

Horse's head. Rev. *Dolphin.* Cf. *Hippos* and *Delphis.*

21. *Rhithymna.* *Dolphins*, Trident.

22. *Tylisos.* Apollôn holding *Goat's head* and *Bow*; in field *Arrow-head*.

VIII. *Aigaion Islands* (Southern).

1. *Amorgos* (second and first centuries B.C.). *Deltôton*, *Lion's head*.

2. *Keôs* (Ditto). 'Forepart of dog l. surrounded by rays; Sirius.'

3. *Karthaia.* A Phoenician colony. *Dolphin*, *Grape-cluster*, *Urn*.

4. *Koressiê.* Cuttle-fish (a frequent figure in archaic art, *e.g.*, wrought in gold at Mykênê) on r. of which, *Dolphin*. The Cuttle-fish is also a common Sikelian type, appearing on coins of Alountion, Messâna, and Syrakousai.

5. *Mêlos.* Pomegranate. Rev. *Bowl*.

Grape-cluster; *Hêraklês*, kneeling, and shooting with *Bow*; *Lyre*.

6. *Mykonos.* *Ear-of-corn*, *Grape-cluster*.

7. *Naxos.* Head of Dionysos, his *kantharos* and *krêtêr* (*Bowl*), *Grape-cluster*.

8. *Paros.* *Goat.* Rev. *Ear-of-corn.*

Goat, with r. foreleg bent; beneath, *Dolphin*. A coin of the second century shows 'Goat, r.; in front, a star.'

9. *Seriphos.* Head of Perseus. Rev. *Harpê* (Vide *sup.* p. 179). Cir. B.C. 300.

Perseus, holding *Harpê* and *Gorgon-head*. Second century B.C.

10. *Siphnos.* *Eagle*, *volant*; with *Serpent* in beak.

11. *Syros.* *Ear-of-corn*, *Goat*, Bee.

'Two male figures standing facing, their right hands resting on their hips.' These figures are generally called Kabîrîm, and probably quite properly so; because it is to be remembered that such a Pair as this, or as the Dioskouroi, = the *Twins*. Another type is the *pilleus*, the egg-shaped close-fitting cap often worn by such figures, surmounted by a star; or *pillei*, surmounted by stars. The 'fratres Helenae, lucida sidera' were identified by the Greeks with the Semitic *Didymoi*.

12. *Tenos.* Poseidôn with *Dolphin; Grape-cluster.*

13. *Thôra.* *Bull* butting, *Lyre.*

IX. *Aigaion Islands* (Northern).

1. *Euboia.* *Bull*, head of, butting; *Bowl*, *Star*, *Prow*, *Ear-of-corn; Hêraklês*, head of; Poseidôn, head of; *Charioteer*, *Gorgon-head*, *Demi-horse*, *Lion's head*, *Dolphin*, *Eagle*, *Eagle* and *Hare*, *Tripod.*

Bull or *Ox, couchant;* above, Star. Rev. Two *Grape-clusters.*

Club, *Galley-stern*, *Prow*, *Ram's head*, *Swan*, *Serpent.*

2. *Imbros.* Naked figure, Hermês Imbramos, one of the Kabîrim; below, *Altar?*

Figure holding *Bowl* and *Lyre.*

3. *Thasos.* 'I went to Thasos,' says Hêrodotos (ii. 44), 'where I found a temple of Hêraklês, which had been built by the Phoenicians who colonized that island when they sailed in search of Eurôpê,' *i.e.*, sailed to discover the West. The island was famous for its mines. Elsewhere (vi. 47) he writes, 'I myself have seen the mines in question: by far the most curious of them are those which the Phoenicians discovered at the time when they went with Thasos and colonized the island, which afterwards took its name from him,' the usual easy way of accounting for names. 'A huge mountain has

been turned upside down in the search for ores' (Ap. Canon Rawlinson). 'Among the settlements of the Phoenicians in the Aegean Sea, none was so important to that commercial people as Thasus, blest with a fertile soil, and mountains abounding in silver. The deities held in the highest honour by the Thasii, appear from their coins to have been Bacchus and Hercules, both probably introduced by the Phoenicians' (Leake, *Numis. Hellen.* in voc. *Thasus*). The Hellenic variants of the principal name of the god Bakchos, so far as known to me are:—Dionyxos, Deonysos, Deunysos, Dionysos, Dionûs, Zonnyxos, Zonnysô (Vide *Sem.* p. 133). They attach themselves to the original Assyro-Babylonian forms as follows:—

I. As.-Bab. DA-AI-NU-TSI-*ru* ('Judge supreme,' *W. A. I.* IV. xxviii. 1, Rev. l. 6).

i. Hellenic. *Dio-ny-xos* (Stêsimbrotos of Thasos, B.C. 450).

ii. ——— *Deo-ny-sos.*

iii. ——— *Deu-ny-sos* (Ionic).

II. As.-Bab. DI-WU-NIS-I ('Judge-great-of-men,' = the Sun-god, the Grape-giver, *W. A. I.* II. lx. No. 2, l. 40).

i. Hellenic. *Di-o-nys-os.*

ii. ——— *Di-o-nûs.*

III. As.-Bab. DI-YA-NU-KHA (*sa Ali* 'Dionysos-of-the-City,' *W. A. I.* III. lxvi. Rev. Col. v. l. 40).

i. Hellenic. *Zo-n-ny-xos* (Lesbos).

ii. ——— *Zo-n-ny-sô* (*Corp. Ins. Gk.* No. 2167).

The last forms arise from the Hellenic connexion between such words as Διός, Δί, Ζάν, Ζηνί, etc. The Ph. form would be **Dayon-anoshîm* ('Judge-of-men'). Amongst the Thasian coin-types are:—

Heads of Dionysos bearded, and beardless. *Bowl*, *Club*, *Urn*.

Hêraklês, kneeling on r. knee, and discharging an *Arrow;* in field, Bee.

Naked, r. hand on *Club;* on left, *Lion-skin*.

Dolphin; below, smaller *Dolphin*.

X. *Sikelia*.

1. *Uncertain and unattributed*. *Bull*, butting. Demi man-headed *Bull*, swimming. *Horse*, galloping. *Ram*, walking, *statant*.

2. *Abakainon*. *Demi-bull*, butting.

3. *Adranon*. *Bull*, butting; *Lyre*.

4. *Akragas* (Agrigentum) :—

Bird, in claws of *Eagle*.

Charioteer, driving *quadriga;* beneath, *Crab*. Cf. *Hêniochos* and *Karkinos*. Several variant types of *Charioteer*.

Crab. A protagonistic type. With 'broad sea-fish,' type of the *Ichthys Notios*.

With shell 'which presents the form of a human face.'

With *Sea-monster*. With Skylla. With one, or two *Tunnies*.

Deltôton. Behind *Eagle*. Behind head of Zeus.

Dolphin. Beneath *Crab*.

Eagle. A protagonistic type. *Statant*, devouring *Serpent*. Cf. *Aetos* and *Ophis*.

With wings closed, *statant*.

Two, on *Hare*, one about to tear the prey, the nearer one raising its head and screaming (Vide *sup*. p. 141).

One, on supine *Hare;* on a *Colt;* with *Tunny* in claws; with *Fish* in claws; *statant* on *Tunny;* head of (Vide *Bird*, *Deltôton*).

Fish (Vide *Crab*, *Eagle*).

Hêraklês. Head of, with *Lion-skin.*

Horse (Vide *Eagle*). *Sea-horse*, beneath *Crab.*

Lion. Head of, with open mouth.

Sea-monster. With *Fish* in mouth, beneath *Crab.*

5. *Agyrion.* Demi man-headed *Bull;* man-headed *Bull* with 8-rayed Star; *Eagle*, *Hare*, *Hêraklês; Hydra*, burnt by Iolâos (Vide *inf.* p. 216).

6. *Alaisa.* *Eagle*, *Ear-of-corn*, *Grape-cluster*, *Horse*, *Tripod.* The *Bucranium* and Gryphon also appear. Above the *Horse* is an 8-rayed Star.

7. *Alountion.* Head of Dionysos with *Grape-cluster.* Rev. *Crown* (of olive).

Bow and *Arrows*, man-headed *Bull*, *Club*, *Eagle*, *Hêraklês.*

8. *Eryx.* Near the famous temple of 'Aschthârth Erek-hayîm (Vide *sup.* p. 154), called Aphrodîtê Erykînê (Paus. VIII. xxiv. 6), a variant form of which epithet is Êrigonê, the zodiacal *Virgo.*

Eagle, with closed wings. Rev. *Crab.*

Erykînê. Head of, full face. Rev. *Dog.*

Dog; above, 8-rayed Star.

Dove, on hand of Aphrodîtê Erykînê.

9. *Gela.* Demi man-headed *Bull*, *Charioteer*, *Eagle*, *Hêraklês*, *Horse.*

10. *Himera.* *Charioteer*, *Crab*, *Goat*, *Hêraklês*, *Sea-horse.*

11. *Iaitiê.* *Crown* (laurel-wreath), *Gorgon-head*, *Hêraklês.*

12. *Kamarîna.* *Charioteer*, *Gorgon-head*, *Hêraklês*, *Swan*, a protagonistic type.

13. *Katana.* Man-headed *Bull*, kneeling or standing; *Charioteer*, *Fish.*

Helmets of the Dioskouroi, surmounted by stars, = *Twins.*

Dolphin, *Grape-cluster*, *Lion's* head, *Serpent.*

14. *Kenturipa.* *Bird*, *Eagle*, *Deltôton*, *Dolphin*, *Hêraklês*, *Lyre.*

15. *Kephaloidion.* *Club*, *Hêraklês*, *Lion-skin.*

16. *Leontînoi.* *Altar*, *Charioteer*, *Fish*, *Horse*, *Lion's* head.

17. *Lilybaion.* A Karthaginian foundation. *Lyre*, *Serpent* around *Tripod*, *Tripod.*

18. *Morgantion.* *Ear-of-corn*; *Eagle*, standing on *Serpent*; *Lion*, between his legs *Serpent*; *Tripod.*

19. *Motyê.* The Phoenician coinage of this place has already been noticed (*Sup.* p. 164). *Dolphin*; *Dog*; *Eagle*, with *Serpent* in beak, *Fish* (Tunny).

20. *Nakona.* Seilênos, seated sideways on ass, holding wine-cup. Mr. Talfourd Ely has 'traced the development of Seilênos from an independent Asiatic deity of flowing water to the position of a drunken servant of Dionysos' (*Academy*, February 15, 1896).

21. *Naxos.* Head of Dionysos, with pointed beard. Rev. *Grape-cluster.* Protagonistic types.

22. *Panormos.* *Altar*, circular, flaming; *Bull*, demi, man-headed; *Charioteer*, *Eagle*, *Lyre.*

23. *Segesta* (*Aigesta*). *Charioteer*, *Dog*, the protagonistic type.

24. *Selinountios* (*Selînûs*). *Altar*, *Hêraklês* seizing *Bull*, *Charioteer.*

25. *Solous.* *Hêraklês*, head of in *Lion's* scalp. Rev. *Sea-horse.*

26. *Syrakousai.* *Bull* (devoured by *Lion*, butting), *Charioteer*, *Club*, *Dog*, *Dolphin* (4, 3 and 1), *Ear-of-corn*, *Fish*, *Gorgon-head*, *Hêraklês* (in *Lion-*

skin), *Horse* (Sea-horse, Winged, and Demi-winged), *Lion*, *Lyre*, *Swan*, *Tripod*.

27. *Tauromenion*. *Bull's* head. Rev. *Grape-cluster*.

Bull, walking; man-headed; demi, butting.

'Pegasos' flying; beneath, 8-rayed Star.

28. *Tyndaris*. *Horse's* head.

29. *Zanklê* (*Messâna*). *Bucranium*, *Calf's* head, *Charioteer*, *Club*, *Dolphin*. *Eagle* devouring *Serpent*; above, *Hare* running. *Eagle* (*volant*), *Fish*, *Grape-cluster*. *Hare*, running; beneath, *Dolphin*. *Hêraklês* (with *Lion-skin*), *Lion*, *Sea-horse*.

XI. *Thessalia*.

1. *Alos*, *Aleus* (*i.e.*, 'Ram'-town, Heb. and Ph. *Ayil*, Bab.-As. *Ailur*, 'Ram'). In Phthiôtis, said to have been built by the hero Athamas (Strabo, IX. v. 8), 'in Ionic Tammas' (K. O. Müller, *Orchomenos und die Minyer*, p. 156), *i.e.*, Tammuz-Duwuzi.[1]

Head of Zeus Laphystios. Rev. Hellê seated sideways on *Ram volant*. 'Zeus the Gluttonous' = the Ph. Baal-Kronos (Vide *sup*. pp. 3, 154) to whom human sacrifices were at times so profusely offered, especially by the Karthaginians. Such sacrifices were connected by legend and tradition with the race of Athamas (Vide Herod. vii. 197). Between Korôneia and Orchomenos in Boiôtia, a natural locality for such a god, was the chief *temenos* in Hellas of the Gluttonous-one; and in the time of Pausanias (IX. xxxiv. 4) the spot was still shown where Athamas was about to sacrifice Phrixos and Hellê to this god, 'when men say that a Ram having a golden fleece was sent for the children by Zeus, and that they escaped upon this Ram.' Here we notice that the Hellenic Zeus thwarted the horrid ritual of his Phoenician namesake. The Ram in question was considered to be the zodiacal *Aries* (Vide *sup.* p. 54), and the combination is an exceedingly interesting instance of Phoenician divinities and ritual on Hellenic ground. The original golden, flying Ram, as indeed is sufficiently obvious, is the Sun (Vide R. B. Jr., *Z.* p. 3), which is reduplicated in a stellar Ram (*Krios-Aries.* Vide *sup.* p. 53). Incidentally we also observe that this coin-type is quite unconnected with the actual animal in its normal state. It has been frequently asserted that when rams and bulls appear on coins, such designs have merely been taken from the flocks and herds around; and this theory, though of course never proved, has found wide acceptance. The present instance well-illustrates its baselessness. The shepherd Tammuz is naturally the founder of Ram-town, seat of a cult at once solar and stellar (Vide R. B. Jr., *C. E. A.* sec. ii.).

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[1] 'Your comparison of the myth of Kirkê with that of the lovers of Istar is as self-convincing as your discovery that Athamas is Tammuz' (Prof. Sayce to R. B. Jr.).

2. *Atrax.* *Horse, statant.*

3. *Kranôn.* *Demi-horse,* galloping; *Bull,* butting; *Jar* or *Urn* (ὑδρία) on wheels, on one of which stands a *Raven.* It is impossible in this connexion to avoid thinking of the *Crow* (*Korax*) standing on the *Water-snake* (*Hydra*), which may perhaps be alluded to by play on words. What other meaning the type may have I am unaware.

4. *Gomphoi.* Zeus Palamnaios seated on rock. I mention the type because this divinity is probably foreign in origin. Παλαμναῖος is a title which com-

bines the ideas of skill and cruelty, the clever devices of the hand (πaλάμη) of man and the evil deeds of that hand; and it was natural that the name Palamêdês should be connected with the hand-word and understood as 'the Skilful' (Vide *sup.* p. 138). However the epithet Palamnaios was ultimately understood, *i.e.*, as an 'Avenger,' 'Avenging deity' etc., the earlier meaning is that of the 'Blood-thirsty' and hence 'Blood-guilty' one; and Zeus Palamnaios was certainly akin to Zeus Laphystios.

5. *Gyrtôn.* *Horse's* head and neck; *Horse* bridled, trotting; *Horse* trotting; *Ear-of-corn*, *Grape-cluster.*

6. *Hêrakleia Trachinia.* *Lion's* head, *Club*, *Wreath* of olive.

7. *Lamia.* Head of Dionysos. Rev. *Urn.*

Hêraklês naked, kneeling and discharging *Arrow; Club* on the ground behind him, before him two *Birds* (= *Aetos* and *Ornis*, vide *sup.* p. 34).

8. *Larissa.* All types prior to B.C. 480.

Bull, head and shoulders of; restrained by youth; galloping.

Eagle, looking back, standing on wingless thunderbolt.

Another type is the *Pelekys*, Lat. *Bipennis*, the sacred double-edged axe (= the Thunderbolt), particularly connected with Dionysos and the Karian Zeus Labrandeus ('Of-the-axe').

Horse, trotting, biting his foreleg; head of; demi, bridled; galloping.

Lion, head of, Lion's head fountain.

Serpent, fed by Asklêpios from libation-saucer (*patera*).

9. *Malienses* (Lamia). Head of Dionysos. Rev. *Urn.*

Hêraklês, shooting *Arrow;* in front *Bird, volant.*

10. *Oitê.* The place where Hêraklês, in true Phoenician fashion, was said to have burnt himself to death. *Bow* and quiver, *Grape-cluster*, *Hêraklês* holding *Club*, *Lion's* head.

11. *Perraiboi.* *Bull*, restrained by youth; *Demi-bull.*

Horse, demi, bridled; trotting; with *Altar.*

12. *Phalanna.* Horse, bridled, trotting.

13. *Pharkadôn.* *Bull*, restrained by youth.

Horse, walking, prancing, feeding; demi, galloping.

14. *Pharsalos.* *Horse*, head of.

15. *Pherai.* *Bull*, restrained by youth; *Demi-bull*, restrained by youth; running.

Club, *Fish.*

Horse, 'with rein flying loose, galloping; behind him, lion's head fountain, which pours a jet of water on his back.' Demi, galloping.

Demi; Demi, 'issuing from rocks'; head of, bridled; carrying Hekatê.

Lion, head of; Lion's head fountain, 'water issuing from the mouth.'

Hekatê (Vide *Sem.* III. xxii.) is a frequent figure on these coins, and her connexion with the *Horse* here illustrates the difficult passage ἐσθλὴ δ'ἱππήεσσι παρεστάμεν (Hes. *Theog.* 439). Mr. Percy Gardner, speaking of the type of 'the fore-part of a horse, sometimes issuing from rocks,' observes, 'That by this figure a stream is represented is almost certain . . . the addition of the rocks, out of which the horse is actually leaping, makes the meaning quite unambiguous' (*Brit. Mus. Cat. Gk. Coins. Thessaly to Aetolia*, Preface, p. xxxvi.). This is very possible, and would be based upon the supposed connexion between Pêgasos and πηγή, and the story about the origin of the fountain Hippokrênê, which is thus related by Aratos :—

> ‘A demi-form the sacred *Horse* revolves
> And he, they say, down lofty Helikôn
> Brought the pure water from the Horse's Fount.
> For Helikôn poured down no streams as yet;
> But the *Horse* smote it; and the water thence
> Flowed straightway from the stroke of his forefoot;
> Shepherds first called this water Horse's Fount.
> Down from a rock that streamlet flows, and it
> Is seen among the Thespians’ (*II. D.* 215-23).

The Troizenians also had their Hippokrênê, which similarly sprang from the touch of the hoof of Pêgasos (Paus. II. xxxi. 12). But it would be an utter mistake to suppose that this notion, based on false etymology, was the foundation of the Pêgasos-myth.[1] As M. Berard well observes, ‘De *pegah, le*

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[1] Mr. B. V. Head, after noticing the theory that ‘the forepart of a horse springing from a rock,’ on the coin of Pherai above mentioned, ‘perhaps represents the fountain Hypereia’; and observing, ‘It may be then that at Tanagra a similar horse [where, however, the rock does not appear] symbolizes the river Asopus,’ observes, ‘Another and far more probable explanation of the horse may be sought in the worship of Apollo as a sun-god’ (*Hist. of the Coinage of Boeotia*, 1881, p. 28). Yes, but not found there; Apollôn is unconnected with Pêgasos. Mr. Gardner thinks the ‘half-horse’ at Tanagra probably also represents a stream *i.e.*, ‘the river Lari’; so that rocks or no rocks, the Horse must = a River. It would be interesting to know whether the Euphratean and Hittite winged horses represent rivers. In Hellas a man-headed Bull is at times connected with a river, *e.g.*, the Achelôös is so represented on Akarnanian coins of the fourth century B.C. But even in the case of the Bull it is to be remembered that the horned, bearded, and human-headed Bull appears on a fragment of an engraved shell found by M. de Sarzec at Tello (*Découvertes en Chaldée*, Pl. lxvi. Fig. 4), and thus is a very archaic Euphratean concept.

frein, serait venu Πήγασος: à Corinthe, Athèna est la déesse du frein, χαλινῖτις, parce qu'elle imposa le frein à Pégase' (*Cult. Ar.* p. 116; Cf. Paus. II. iv. 1). It may be added that *sos* perhaps = the Sem. *sûs*, 'horse,' Pêgasos ('Bridle + Horse') being 'the Bridled-horse,' as shown on one of these coin-types. He is the offspring of Poseidôn and sacred to the great Syrian goddess. 'Astarte, mistress of horses,' passes from the East across Hellas to the Latin West, where she reappears as Venus Equestris. It will be remembered that several of these Thessalian towns were situate near 'Iolcus [Vide *inf.* p. 216 Iol-aos.] on the Gulf of Pagasae, formerly the abode of the Phoenician settlers, and the centre of the ancient navigation' (Duncker, *Hist. of Greece*, i. 285).

16. *Skotoussa.* *Hêraklês* in *Lion-skin*, *Club*.

Horse, prancing; demi, galloping.

17. *Trikkê.* According to Homer (*Il.* ii. 729-32) this place was ruled by Podaleirios and Machâôn, the sons of Asklêpios.

Bull, restrained by youth.

Horse, prancing; demi, bridled, galloping; demi, free, galloping; trotting.

Serpent, fed with *Bird* by Asklêpios.

18. *Peparêthos* (Island). Head of Dionysos, *Bowl*, *Urn*.

19. *Skiathos* (Island). *Gorgon-head*, *Grape-cluster*, *Tripod*.

XII. *Illyria.* Amongst these coin-types are *Cow* with calf, *Goat*, *Grape-cluster*, *Serpent*, *Urn*, and *Tripod-caldron*.

XIII. *Epeiros.* Amongst these coin-types are *Bull*, *Wreath*, *Eagle*, *Tripod-caldron*, *Hêraklês* in *Lion-skin*, *Club*, *Dove*, *Bowl* (*kantharos*), *Pêgasos* *volant*, Trident, *Dog* (Kerberos), Star, *Dolphin*, and *Grape-cluster.*

XIV. *Korkyra.* Amongst these coin-types are *Bowl*, *Cow*, *Cow's head*, *Demi-cow*, *Hêraklês* in *Lion-skin*, *Grape-cluster*, Dionysos, *Eagle*, *Pêgasos*, and Star.

XV. *Akarnania.* Amongst these coin-types are *Bowl*, *Club*, *Dolphin*, *Dog*, *Eagle*, *Goat*, *Grape-cluster*, *Hêraklês* in *Lion-skin*, *Lyre*, *Pêgasos*, *Ship*, *Tripod*, and *Wreath.*

XVI. *Lokris.* Amongst these coin-types are *Bowl*, *Grape-cluster*, Star of sixteen rays, and *Urn.*

XVII. *Phôkis.* Protagonistic type ;—*Bull's* head. At Delphoi, *Ram's* head, *Dolphin*, *Goat's* head, and *Tripod.*

XVIII. *Boiôtia.* A region so famous for its Phoenician associations is sure to present types connected with Poseidôn, Hêraklês, Dionysos, and Aphroditê ; and the protagonistic type which runs throughout the whole coinage of the country is the Shield of Hêraklês commonly called the Boiôtian Buckler, 'a round or oval shield with a semicircular opening on either side,' such as Hêraklês, a great national divinity of Thêbai, bears on vase paintings. This type, whether named or not, must be understood as occurring at each place.

1. *Uncertain Mints. Bowl*, *Club*, *Grape-cluster*, *Bow* and *Arrow*, *Dolphin*, *Urn*, Trident ; Poseidôn on throne, holding *Dolphin* and Trident ; *Hêraklês*, wearing *Lion-skin.*

2. *Akraiphion.* Said to have been founded by Akraipheus son of Apollôn, by which, however, as in many cases, merely a Sun-god is meant. The coin-types are those of Hêraklês and Dionysos, who

had a temple and statue there 'well worth seeing' (Paus. IX. xxiii. 3), *i.e.*, the Shield and *Bowl* (*kantharos*). This is a good illustration of the importance of coin-types as illustrating the archaic history of the country, and not being arbitrary inventions or suggestions. Of course Hêraklês and Dionysos, as Sun-gods, practically = Apollôn. Such names as Zeus, Hêra, Dêmêtêr, Athêna, Apollôn, and Artemis are frequently applied to the particular non-Aryan Analogue.

3. *Haliartos. Urn* (*Amphoreus*), Poseidôn Onchêstios, striking with Trident.

4. *Kôpai. Demi-bull.* As the town originally stood on a little island in Lake Kôpâis, the type affords a good illustration of the fact that there is no necessary connexion between a Bull, as a coin-type, and a river (Vide *sup.* p. 201, note).

5. *Korôneia. Gorgon-head*, with protruded tongue; head of Athêna Itônia (Vide *sup.* p. 188, *Itanos*). This connexion was attempted to be explained by one of those baseless and amusing local stories of which Pausanias has preserved so many (Vide Paus. IX. xxxiv. 1). Athêna Itônia, like Athêna Onka (*Sup.* p. 36), was a foreign goddess.

6. *Orchomenos.* The protagonistic type in the early period of this city, once the most important in Boiôtia, is the 'Sprouting corn grain,' which, besides alluding to the fertility 'of the Orchomenian Plain, may yet have been selected as a coin-type from its close resemblance, as represented on the coinage, to the well-known tortoise on the money of Aegina, which island still contributed in all probability by far the greatest portion of the currency in the Boeotian markets' (Head, *Hist. of the Coinage of Boeotia*, p. 9).

As the *Tortoise* perhaps = *Lyra* (Vide *inf.* p. 208), we find ourselves, as usual, unable to get away from the constellation-figures. Other types are :—

Ear-of-corn, *Horse*, Star of eight rays, Shield, *Tripod*, *Urn*, *Wreath*.

7. *Pharai*. *Ear-of-corn*, *Urn*.

8. *Tanagra* (=TAN-ἀγρός, 'the Country-of-Tân, *i.e.*, Poseidôn, vide *sup.* pp. 42, 188). Changed, in the customary way, to make it a personal name, in this case that of an imaginary Tanagra, daughter of Aiolos, or, according to others, of the local river Asôpos. It was a well-known Phoenician foundation (Herod. v. 57, 58), and the inhabitants who migrated to Athênai, where even in late times they had their own temples, were called Gephyraioi (Herod. *ut sup.*; Strabo, IX. ii. 10), *i.e.*, 'Men-of-the-village' or 'Small-town' (Sem. *Koupher*, 'village,' whence place-names, *e.g.* Khephirah, *Jos.* ix. 17 ; so the Ph. Gaphara, *vicus*, Gesen. *Script. Ling. Ph.* p. 422). As might be expected, the neighbourhood is full of Semitic associations. Hard by was 'the scene of the birth of Ôrîôn' (Strabo, IX. ii. 12), and at Tanagra was his tomb ; and the spot where Atlas sits and meditates, both on things under the earth and on heavenly-things (Paus. IX. xx. 3), *i.e.*, on the stars above and below the horizon. Poimandros, a descendant of Poseidôn, was said to have married Tanagra (Ibid. Sec. 1), and the place possessed temples of Dionysos and Aphroditê ; the tomb of the handsome poetess Korinna, who sang of Ôrîôn (Vide *sup.* p. 144) ; and special breeds of cocks, the solar bird, who, when he appears on coins, sometimes with a star, marks the morning. Amongst the Tanagran coin-types is the solar 'wheel of four spokes in

circular incuse' (Vide Head, *Hist. Coin. Boeot.* p. 4). The Shield of course appears as usual, and in one instance with 'rim of shield in twelve compartments.' (For the significance of such a division, vide *inf.* p. 243).

Ear-of-corn, *Galley-stern* (For the significance of this, vide *sup.* p. 101), *Grape-cluster*; *Horse*, demi; with *Wreath* round shoulder; bridled; head of (Vide *sup.* p. 200). The connexion between Poseidôn and the Horse is too familiar for detailed remark.

9. *Thêbai.* Head of Dionysos, *Bowl*, *Grape-cluster*, *Urn.*

Shield, 'the rim of which is divided into twelve compartments' (Vide *sup.*).

Hêraklês, holding *Club* and strung *Bow*; kneeling on r. knee, stringing *Bow*; kneeling on r. knee, shooting *Arrow* from *Bow*; with *Club*, carrying off Delphic *Tripod* (Vide Paus. VIII. xxxvii. 1); strangling two *Serpents*; wearing *Lion-skin*; *Club*, *Club* and *Grape-cluster* (Hêraklês and Dionysos), *Club* and *Arrow*, *Club* and *Bow.*

10. *Thespeiai.* The coin-types of this place show an interesting Semitic connexion. On the rev. of the usual Shield, we find, Two Crescents *addorsed*; Crescent, horns upwards; head of Aphrodîtê Melainis, in front, a large crescent, and beneath, another, smaller. 'Les déesses orientales, à certaine de leur fêtes, portaient des vêtements noirs. Tantôt ces vêtements étaient un symbole de leur puissance sur les astres de la nuit' (Bérard, *Cultes Ar.* p. 107). We find the 'Black' goddess in many parts of Hellas, and generally connected with Dionysos as Melanaigis and Nyktêlios. At Korinthos the temple of Aphrôdîtê 'Melanis' was near the sacred enclosure of the

Semitic Bellerophôn (Paus. II. ii. 4). At Phigaleia she was called 'the Black Dêmêtêr' (Vide *Sem.* p. 41, *et. seq.*). The original prototype is Istar descending 'to the house of darkness,' as related in the now familiar Babylonian poem. Another Thespian coin-type is the *Lyre.*

XIX. *Attikê.*

1. *Athênai.* *Galley-stern*, *Urn.* The Crescent is also found.

The protagonistic coin-types are Athêna and her Owl, which latter is not a constellation-figure (Vide *sup.* p. 162).

2. *Eleusis.* *Bucranium*, Bee (Vide *sup.* p. 184), *Dolphin*, *Ear-of-corn* held by Triptolemos (= Τρίπολος, 'the Thrice-ploughed-field'), *Grape-cluster*, *Wreath* of corn.

3. *Ôrôpos.* *Dolphin*, around Trident; *Serpent*, with Amphiarâos.

4. *Salamis.* *Gorgon-head*, on shield of Aias.

XX. *Megara.* *Dolphin*, two *Dolphins* swimming, *Tripod* between two Dolphins; *Lyre*, *Prow*, *Tripod*, *Wreath.*

XXI. *Aigîna.* The coinage of this island, as representing the first money struck in Europe (Vide *sup.* p. 174), is of especial interest; and its familiar protagonistic type is a Tortoise, generally a Sea-tortoise, but at times a Land-tortoise. Leake is content to observe that it was 'the symbol of the island,' a remark which does not carry us far. The creature was not by any means peculiar to Aigîna. Near the Isthmus of Korinth were the Skirônian rocks, whence, according to the legend, Skirôn was wont to throw travellers into the sea where they were devoured by a tortoise (Paus. I. xliv. 12).

Being thrown in himself by Thêseus, he shared the same fate, a scene which appears on the Vases (Vide R. B. Jr., *G. D. M.* ii. 262-3). 'Sea-tortoises,' says Pausanias, 'are like land-tortoises, except in size, and with regard to their feet, for they have feet like seals.' By the Sea-tortoise, probably the Leathery-turtle is meant. Elsewhere Pausanias (VIII. xxiii. 6) says that the Arkadian woods sheltered tortoises of immense size. Aigîna was an island to which Poseidôn made good his claim even against Zeus himself (Vide Plout. *Sympos.* ix. 6); and a version of the Skirôn-story at Megara represented him as a good and religious man. It is quite possible that the legend is founded on a cruel Semitic worship of Poseidôn by throwing victims into the sea in his honour (Cf. Diod. xiii. 86), which is put a stop to by the Aryan hero Thêseus, assisted of course by Athêna, the customary antagonist of Poseidôn. The Sea-tortoise would thus be a creature of Poseidôn. M. Svoronos, however, regards the Aiginetan Tortoise as a representative of *Lyra*, and illustrates this by a unique Tortoise in the Louvre, which he, doubtless correctly, considers a Hermês-symbol (*Sig. des Types Mon.* p. 109). This is quite possible, but very doubtful, especially since, I think, there is no particular connexion between Hermês and the island. Another view of the matter is thus stated by Mr. Head :—'The origin of the type of the Aeginetan coinage is supposed by Curtius to be due to the fact that the tortoise was a symbol of Aphrodite (Paus. VI. xxv. 2), in whose temple, which overlooked the great harbour of Aegina (Ibid. II. xxix. 6), Pheidon's mint may have been set up. This Aeginetan goddess of the sea and protector of trade [for the Aeginetans were 'traditionally distinguished among all the Greeks for their aptitude for commercial pursuits'], may have been [no,—'was'] originally identical with the Phoenician Astarte, and it is probable that Aegina was one of the stations from which the Phoenicians introduced their wares into the Peloponnesus' (*Brit. Mus. Cat. Gk. Coins*, *Aegina*, Introd. pp. lxv.-lxvi.). The statue of Aphrodîtê Ouraniê at Elis, which was the work of Pheidias, had 'one foot on a tortoise'; and Schliemann observes that the tortoise 'is so plentiful in the Troad, that one can hardly take a step in the country without seeing it. On the banks of the rivers . . . on the fields and heaths, it can be seen in large numbers . . . and when it is pairing time, there are most ridiculous scenes, particularly among rivals' (*Ilios*, p. 318). This may perhaps be thought to support the view of Curtius, but the point is exceedingly doubtful, and the Tortoise, as noticed (*Sup.* p. 171) also appears on an Etruscan coin. According to Pausanias (II. xxx. 2), the non-Aryan Hekatê (Vide *sup.* p. 155) was more honoured at Aigina than any other divinity; we know but little of the details of her earlier ritual, and the Tortoise, like the Toad, may have been connected with her.

I think, however, that the Tortoise-type of Aigina originated in another line of idea, and is a reduplication of a Euphratean type. I discovered the zodiacal *Crab* in *Tablet*, No. 81-7-6, 102, where he appears as 'the Constellation *Nagar-asurra* (Vide *sup.* p. 60) and the Sign of the fourth month.' The Crab has not yet been found on the Boundary Stones, whereon various constellation-figures are represented; but it appears on the Cylinders, whilst the Turtle (= Sea

Tortoise) is found on the Boundary Stones (Vide R. B. Jr., *Z.* Figs. viii., ix.) and the Tortoise on the Stone of Nabukudurutsur I. (Vide *W. A. I.* V. Pl. lvii.). The Turtle, Tortoise, and Crab are all variants; and, again, the Crab and Scorpion are variants, being originally personifications of Darkness, conceived in monstrous or semi-monstrous form, which seizes, stings, or, it may be, guards the solar-hero. Hence the contests between Hêraklês and the Crab (*Sup.* p. 145), between Ôrîôn and the Scorpion (*Sup.* p. 67). Scorpion and Tortoise hold a similar position in the Egyptian *Book of the Dead.* Thus in cap. clxii. the formula, 'The Sun lives, the Tortoise dies,' is four times repeated; and in the division of the Zodiac one of its darkest parts, in fact 'the Dark Sign,' is allotted to *Cancer*, who faces and opposes the solar *Leo.* The creature connected with Darkness is naturally also connected with Aphroditê Melainis (*Sup.* pp. 206-7). But, further, as Jensen (*Kosmologie*, p. 65) has observed, for some reason or other the Scorpion and some Shell-fish appear as symbols on 'the so-called Deeds of sale'; just as the Crab is a prominent symbol on some statues of Artemis Ephesia (= the Hittite 'Atar-'ati), and, as we have seen, is a Phoenician (*Sup.* p. 164) and Greek coin-type (On this subject, vide R. B. Jr., *The Zodiacal Crab*, in *The Academy*, Feb. 21, 1885; Dec. 6, 1890). Considering that the primary factor in the intercourse between Phoenicians and Aiginetans would be commerce, if a Crab, Tortoise, Turtle, Shell-fish, etc. was a kind of common mark or symbol (like our legal stamps) impressed on trade documents, it would naturally become a coin-type, and any connexion between the creature and any particular divinity would strengthen the arrangement. The Tortoise of Aigina of cir. B.C. 700 has 'a row of dots' 'down the middle of its shell'; and this purely artificial addition reminds us that the *Crab* of Aratos, which was evidently figured in a position similar to that of the Turtle of the Boundary Stones, was bisected by the Tropic of *Cancer*, which passed through it

> 'From end to end, where a straight line would best
> Divide it with an eye on each side of the zone.'
> (*H. D.* 495-6).

I will not further pursue the subject at this point of the enquiry, but will say, as Hêrodotos and Pausanias would have done, for the present let this suffice concerning the Tortoise. Other coin-types and symbols of the Island are:—

Bird, volant; Bucranium, Dolphin, Fish, Prow (=the *Argo* type), and *Ram's* head. A Pentacle, composed of three interlaced triangles forming a five-pointed Star, also appears.

XXII. *Korinthos.* The constant and protagonistic type of Korinth and her colonies, whether in Italy, Sikelia, Illyria, Êpeiros, Korkŷra or Akarnania is the *Pêgasos*, which I presume no one would attempt to explain by always connecting it with some stream (Vide *sup.* pp. 200-1). The colonies obviously adopted it because it was the familiar type of the mother-country; and so their local streams are out of the question, and a similar reason may have obtained elsewhere. Korinthos was the abode of Hipponoös ('the Wise-horseman'), commonly called Bellerophôn (Vide *Sem.* p. 167), in explanation of which Semitic name the usual baseless story was invented. According to some, he was the son of Poseidôn and Eurynomê (Vide *sup.* pp. 29, 155). At Korinthos Athêna was said to have given Pêgasos to the hero (Paus. II. iv. 1); and the locality was connected with a whole group of Semitic divinities, Poseidôn and his son Palaimôn, whose statue was represented on a Dolphin's back (Ibid. II. i. 7); Inô (= Ph. Anna, 'the Merciful,' Didô, 'the Beloved')-Leukothea ('the White-goddess'); Aphrodîtê, Hêra Akraia (Vide *Sem.* pp. 46, 162), etc. The Korinthian coins begin in the time of Kypselos, seventh century B.C., and the earliest type is 'Pegasos bridled, with curled wing, flying r.'; beneath him is the Q (*Q'oph*) of the archaic Kadmeian alphabet. The consideration of this early coin-art will be assisted by a reference to the famous Coffer (κυψέλη) in which, when an infant, the Korinthian despot had been concealed, and whence he obtained his name Kypselos (Hêrod. v. 92). Made of cedar-wood, ivory and gold, and 'richly adorned with figures in relief,' it had, long ere his date, descended as a precious heirloom in the family. At the time of Pausanias, who has given a fairly full description of it (V. xvii.-xix.), this Chest was part of the treasures of the temple of Hêra at Olympia. There were inscriptions upon it in archaic letters and partly written *βουστροφηδὸν*, a reminiscence of a foreign origin; and also other inscriptions, winding-about (ἑλιγμοὺς) and difficult to understand. On the first side of the Chest was depicted Oinomaos, king of Pisa in Êlis and son of Arês, pursuing Pelops ('the Dark-faced'), the swarthy stranger from Asia Minor, tamer of horses, favourite of Poseidôn and grandson of Atlas, who is bearing away the king's daughter Hippodameia ('the Lady-horse-breaker'). This is practically a contest between Poseidôn and the Aryan Arês, in which the latter unlucky god is worsted as usual. 'Each [Oinomaos and Pelops] have a pair of horses of their own, but those of Pelops have wings by nature.' Thus we notice the European Horse is wingless, the Winged-horse is connected, as we should expect, with Asia (Vide *sup.* p. 167). On the fourth side of the Chest was depicted a goddess to whom the name of Artemis, as the nearest corresponding Greek divinity, was given. 'Artemis,' says Pausanias, 'I know not why [*i.e.*, it was a style of artistic treatment quite un-Hellenic] has wings at the shoulders, and in her right hand she holds a leopard, and in the other hand a lion.' With this representation we may compare the curious archaic 'Artemis' of Dorylaion in Phrygia, who wears the Kybelê-crown, holds a small lion in her left hand, and has curved wings. This holding of animals is not merely thoroughly Asiatic, but also distinctly Euphratean. On the Cylinders Gilgames, sometimes *Engonasin*, holds up a lion (Cf. Cullimore, *Oriental Cylinders*, Nos. 39, 102). But it is to the wings that I would call special attention. We know what the wings of the Dorylaian Artemis were like, curved (='curled'); and I think there is practically no doubt that the wings of the Artemis of the Coffer were treated in the same style. On the topmost side of the Chest 'there is a Centaur, not with all his feet horses' feet, for his forefeet are those of a man. . . . And the tradition about the Centaur is, that Cheirôn, although he had been removed from men, and had been thought worthy to be a companion with the gods [*i.e.*, had been translated to the skies as a constellation-figure, *Centaurus*], returned to earth to comfort Achilleus.' In my *E. S. R.* Part IV. Figs. i. ii. I have reproduced two engraved gems from Western Asia, the first of which shows the Centaur with feet as described by Pausanias, and curved or curled wings on his horse-back, holding up a Boar; the second type shows him, with his forefeet those of an eagle, and curled wings from his human-back, holding up a lion. I need hardly say that we have here an illustration of the origin of the constellation-group *Kentauros* and *Thêrion* (Vide *sup.* pp. 110-11). Now it is evident that the artistic treatment of the Kypselan Centaur was similar, though doubtless varying in detail, to that of the Centaurs of the gems. In the case of all these representations—Centaurs, types of Artemis, Pêgasos, we have the archaic Oriental curled wing. And therefore it is practically certain that the wings of the winged Horses depicted on the Chest were of the same type. Two types of Pêgasos, figured by Lajard (*Culte de Mithra*, Pl. xliii. Figs. 24, 27), one showing the Demi-horse; beneath, a star, exhibit the same treatment of the wings. They are, however, not archaic, but probably reproductions of the archaic type. Still they are interesting, as a time-honoured design is frequently preserved with very little alteration through many centuries. We thus get the Winged-horse of Korinthos firmly connected with two Asiatic strangers Bellerophôn and Pelops. It is also sacred to the Great Goddess (whether called Astartê, Kybelê, Rhea, Artemis Ephesia, etc.), Poseidôn, and Aphrodîtê; also to the Semitic Sun-god (Cf. 2 *Kings*, xxiii. 11; Paus. II. iii. 2) who, under the name of Hêlios, ruled over the Akrokorinthos together with the Armed Aphrodîtê (Ibid. II. i. 6; iv. 7), of whom Hêra Akraia (Vide *sup.* p. 212) is a phase. The Horse is winged because solar, and demi because at times the sun is but partly seen. The same reason applies to the Bull, Ox, or Cow, at times demi, like the Moon with which it is specially connected (Vide R. B. Jr., *V.* Fig. xix. The Lunar Bull. From Hamath). The Winged-horse, as noticed (*Sup.* p. 213) was familiar to Lykians, Phoenicians, Hittites and Babylonians. (Vide also R. B. Jr., *H. D.* Fig. lxv. The Horse. From a Euphratean Boundary-stone). Another early Korinthian type is 'Forepart of flying Pegasos.' The Euphratean instance above mentioned shows the head and forepart of Horse upright on an altar, the whole inclosed by a circular arch in two bands. A third early Korinthian type, *i.e.*, prior to B.C. 500, shows the 'Head of Pegasos.' In forming the constellation-figure the second of the three types mentioned, *i.e.*, the Demi-horse was selected, the reason being that certain stars were obviously connected with the head and forelegs, and there was no room in the heavens for the whole animal on such a scale, the figure being bounded by the Zodiac and *Andromeda* too closely to permit of a further extension. A fourth Korinthian coin-type, cir. B.C. 430, shows 'Bellerophon naked . . riding on bridled Pegasos flying r.' Rev. Chimaira.

The Chimaira (*χίμαιρα* = Lat. *capra*), a fire-breathing She-goat with lion-head and serpent-tail (*Il.* vi. 181), is generally connected with volcanic phenomena in Lykia. 'The merely physical meaning of the Chimaera,' says Mr. Ruskin, 'is the cloud of volcanic lightning, connected wholly with earth-fire, but resembling the heavenly cloud in its height and its thunder' (*Queen of the Air*, i. 29). But whatever else the Chimaira may be or represent, it is also a γρύλλος, a combination-figure of Signs, like the Euphratean Scorpion-Sagittary, and the many sportive examples in Classic art. It is in fact a constellational combination *Leo* + *Capella-Capricorn* + *Serpens*, which together fairly represent the zodiacal band; and all these, thus linked together, are vanquished by the Sun in his annual course. It is not therefore surprising to find on a Vase (*Cat. Gk. and Et. Vases in the Brit. Mus.* Vol. ii. 1893, No. B. 162, p. 115) the solar Hêraklês, assisted by his faithful comrade Iolâos (= Ph. *Iol*, 'contractum ex Iubal, Iual, *splendor Baalis*' Gesenius.) attacking the Chimaira, although this event is not elsewhere recorded. Similarly, the solar Dionysos slays the serpent Kampê (Apollod. I. ii. 2; Diod. iii. 72), the 'Caterpillar,' *i.e.*, the creature that turns and twists; that is, the Sun in his resistless progress destroys the time-cycles (Vide R. B. Jr., *G. D. M.* ii. 72 *et seq.*, where the subject is fully considered), the Serpent-of-eternal-years, sometimes tail in mouth, which his own solar course marks out.

Other Korinthian coin-types, also constellation-figures or connected with them, are: *Bow, Bowl, Bucranium, Bull* (demi), *Club, Dog*, *Dolphin, Eagle, Eagle* and *Dolphin, Ear-of-corn, Fish, Grape-cluster, Gorgon-head, Harpê* (Vide *sup.* p. 180), *Lyre, Serpent, Tripod, Urn*, and *Wreath*.

We further find Aphrodîtê, Poseidôn, and the Bee, Gryphon, Trident, and Wheel, all of which have an Asiatic connexion.

The remaining type or symbol on the Korinthian coins is one of much interest and which we have not hitherto met with, a *Censer* (Θυμιατήριον), an object frequently figured upon the Cylinders. I have elsewhere (Vide *L. K. O.* secs. xvi., xvii.; *Z.* p. 15 *et seq.*) shown very strong, if not absolutely conclusive, reasons for believing that the original Sign of the seventh month, called in Ak. *Tul-ku* ('The Illustrious-mound') was a circular *Altar* grasped in the *Claws* of the *Scorpion*, a Sign which has been reduplicated in the present constellation *Ara*, below the *Scorpion* (Vide *sup.* p. 67). This *Altar*, though small, was yet considered as of great importance, part of which is derived from its connexion with the original zodiacal *Altar*. Aratos calls it 'a mighty Sign,' speaks of 'the southern *Altar's* sacred seat,' and devotes an unusual amount of space (*H. D.* 402-35) to a consideration of it; whilst Manilius says '*Ara* mundi templum est' (*Astron.* i. 427). Euphratean altars, like Classical altars, were of various kinds, square, pyramidal, and pillar-shaped. Some of these latter are small altars of incense with circular covers. A cylinder (Lajard, *Culte de Mithra*, Pl. xlix. Fig. 2) shows one of these Altar-censers guarded by two Scorpion-men, one on either side (= Darkness, morning and evening, guarding the Sun), and which supplies a further instance in art of the connexion between *Scorpio* and *Ara*. But the Euphratean Altar-censer clears up a question which perplexed the learned Ideler, who, having observed that the Arabs call *Ara* *El-midschmara* ('the Censer'), remarks:—'The ancients were not agreed on the form of this figure. The θυτήριον of Aratus and the *Ara* of Cicero, Manilius, Hyginus and Avienus is a sacrificial-table; the θυμιατήριον and *Thuribulum* of Ptolemaus, Geminus, Vitruvius, and Germanicus is a censer.

The former is on the Borgian Globe; the latter is represented on the Dresden.' The reason of this is now apparent; both were archaic Euphratean variant forms of an altar. Ideler continues:—'In Eratosthenês [*i.e.*, in the *Katasterismoi*, which was ascribed to Eratosthenês] this constellation is called Νέκταρ ἢ Θυτήριον. What Νέκταρ means here I know not'—(*Sternnamen*, pp. 280-1). *Nektar*, according to the late usage of the word, means 'fragrance,' and here simply = *Thuribulum*. The constellation is called *Censer* or *Altar*, and we can now see why. It is, therefore, very interesting to find the *Thymiatêrion*, like other constellation-figures, as a coin-type.

The coin-types of Korŷkra have been already referred to (*Sup.* p. 203). Those of the other Korinthian colonies require no special mention, being to a great extent reduplications of the types of the mother-city.

XXIII. *Achaia.*

1. *Aigai. Dove, volant; Demi-goat*, head of Dionysos. These coins are early, B.C. 500-431, and the *Goat* is the protagonistic type. It is easy to explain the selection as being merely based upon play of words (ἀιξ, *i.e.*, the 'springer,' 'rusher,' αἰγίς, which certainly means 'goat-harness,' vide *sup.* p. 130, whatever else it may signify); but this view, even if correct, appears to be by no means exhaustive. Few animals are more important in mythology than the Goat, whilst *Capella* and *Capricorn* stand in the front rank of stars and constellations. The Goat is curiously connected with Storm and the Storm-god, alike on the Aryan, Semitic, and Sumerian sides (Vide *sup.* p. 129).

On the Aryan side there is, amongst others, an etymological link (*ἀίξ-ἀΐσσω*), and on all sides a singular link with a Charioteer. Thus, the Vedic solar Goat-god Pushan is 'the most skilful of charioteers' (*Rig-veda*, VI. lvi. 3), 'drawn by sure-footed goats' (*Ibid.* lv. 4, 6). The car of the Norse Thorr, a semi-solar Storm-god, called Akethorr ('Thorr-the-Charioteer'), is drawn by the Storm-goats Tanngnjost ('Teeth-gnasher') and Tanngrisner ('Fire-flashing-teeth'). The Semitic and Hellenic solar Goat-god Dionysos is called Melanaigis (Paus. II. xxxv. 1), 'Clad-in-a-black-goat-skin' = 'Wrapped-in-dark-storms.' So Gubernatis (*Zoological Mythology*, i. 402) explains the Aryan mythological Goat as 'the sun veiled by the gloom.' Similarly, in the Euphrates Valley we find the Ak. Storm-god Meri, or Mermer ('the Very-glorious'), also called Uras ('the Veiled') closely connected with the Goat, as I have shown at length (Vide *E. S. R.* Part i. 21 *et seq.*). And this Veiled-one, in As. Ramânu ('the Exalted'), the Rimmon of 2 *Kings*, v. 18 (where the vowel-points are wrong), the Ῥαμάς· ὁ ὕψιστος Θεός· of Hêsychios (Cf. the *ῥάμαν τὸ ὕψος* of Steph. Byzant. in voc. *Laodikeia*), = Melanaigis; whilst the name Ramânu was afterwards erroneously connected 'with a root signifying "to thunder"' (Sayce, *Rel. Anct. Babs.* p. 202), and written Rammânu ('the Thunderer'). To pass from the stormy solar Goat to the stormy stellar Goat, Aratos, speaking of *Aigokerôs-Capricorn*, the *Muna-kha* ('Goat-fish') of the Euphratean sphere, says:—

> 'Grievous blasts
> Break southward on the sea, when coincide
> The *Goat* and *Sun*' (*H. D.* 291-3).

And of the *Charioteer* and *Capella* he says:—

> 'If you would see the *Charioteer* and stars
> Belonging to him, if of *Goat* and *Kids*
> Report has reached you—they who oft behold
> Men tossed about on the dark stormy sea—
> All his huge form towards the left of the *Twins*
> Inclining, you will find. On his *left shoulder*
> The sacred *Goat* which men say offered Zeus its dug;
> Zeus' servants call it *the Olenian Goat.*
> She is both large and bright; but they—the *Kids*—
> Shine somewhat feebly on the wrist of the hand' (*H. D.* 156-66).

And again he says:—

> 'Yet speed not quickly with the *Charioteer*
> *Kids* or *Olenian Goat;* on his vast hand
> They shine, distinguished from his other limbs
> For raising storms, when moving with the Sun'
> (*Ibid.* 679-82).

If we turn to the Cylinders we find few scenes more frequent than what M. Menant, in his remarks on the *Collection de Clercq*, 1888, calls 'Sacrifices du chevreau'; and in instance after instance whether on Cylinders (Vide *Col. de Clercq*, Nos. 163-7) or sculptures (Vide R. B. Jr., *E. S. R.* Pt. i. Fig. 5) the Goat, or some connected animal such as the Ibex, is supported on the *left* arm of a god or of a votary, is in fact 'the Olenian Goat,' 'c'est-á-dire portée sur le bras, ὠλένη, *ulna*' (Delambre, *Hist. de l'Astron. Anc.* p. 64). The imitative Latin poets faithfully, if not slavishly, reproduce this stormy stellar Goat. 'Insana Caprae sidera' (Hor. *Car.* III. vii. 6); 'Pluvialibus Hoedis Verberat imber humum' (Ver. *Aen.* ix. 668-9); 'Olenie signum pluviale Capellae' (Ovid, *Fas.* v. 113). I have noticed (*Sup.* p. 130) that a Sumerian name for the star *Aix-Capella* was *Askar* ('Goat'). It was called in Bab. *Iqû*, from the Sum.-

Ak. *ik*, 'door,' 'gate,' as being the patron-star of *Bab-ili*, Bâbilu ('Babylôn,' *i.e.*, 'the Gate-of-the-gods'; cf. *Gen.* xi. 5: 'Yahveh came down to see the City'). The name *Iqû* also harmonized with *Aix*, and, with the Arabs, became *Al-ayyâq*, whence the *Alaioc*, *Alhajok*, *Alhajoth*, etc. of mediaeval planispheres. But this *Goat*, it will be observed, reappears in Krêtê, and, like the *Bears*, is a Zeus-nurturer, and called Amaltheia, a name as yet unexplained. The reason why certain Hellenic names have hitherto defied all interpretation, is that they are not connected with any principle of etymology, but with style of script, the Semitic being read from right to left, the Hellenic from left to right, and the fashion *βουστροφηδὸν* being a compromise. *Amal* = the Sem. *L'Amma* ('To *Ammâ*') read Hellenically, *i.e.*, from left to right. *Ammâ* ('Mother') is the great Mother goddess of Western Asia, who was identified with Rhea. So Hêsychios:—'Αμμάς· ἡ μήτηρ. καὶ ἡ 'Ρέα. *Ama* (l)-*θεία* = 'the Divine-mother.' And this Zeus-suckling Goat-mother is also called Aigê, daughter of Ôlenos (Hygin. *Poet. Astron.* ii. 13) or the 'Arm' on which she was carried. The carrying of the sacred Goat on the arm has thus advanced from the Euphratês Valley to Krêtê. Aigê was assisted in nurturing Zeus by her sister Helikê (*Ibid.*), 'the Twister,' by some also called a daughter of Ôlenos and by others a daughter of Lykâôn, who is connected with the Phoenician cult of Zeus Lykaios (Vide Bérard, *Cultes Ar.* pp. 49-93). Aigê was changed into the *Goat*-star *Aix*, Helikê into the *Bear*, which 'twists' around the pole.

I am not here attempting to deal exhaustively with all this intricate complication; but am merely indicating some of its tangled threads and their original Euphratean connexion. Yet it is really very curious to find Aigê and Helikê again located side by side, and this time on the coast of Aigialos ('the Country-on-the-sea-shore'), afterwards called Achaia (Paus. VII. i. 1). Here they appear as two very ancient towns specially devoted to the cult of Poseidôn (Cf. *Il.* viii. 203; xx. 404), the Lord of Krêtê. The name Aigai is particularly connected with this god, for at Aigai in Euboia was 'his famous abode in the depths of the sea' (*Ibid.* xiii. 21); and the link between them is not the Goat simply, which is not a specially Posidonian animal; but the Storm, which is connected with the god of the Aigaion, and probably the Goat as connected with the Storm. In Babylôn itself the *Goat*-star was the Storm-star. Thus in the *Tablet of the Thirty Stars*, l. 50, we read:—*Kakkab Dil-gan* [another name for *Askar*] = *kakkab Ma-â-tu: Ma-â-tu Tin-tir-ki*, 'The Star *Messenger-of-light* = the Star *Tempest* (*i.e.*), the *Tempest* of the *Abode-of-life*,' a name for Babylôn. Mâtu, the Tempest-god, had been the agent of vengeance against mankind at the Deluge; and *Capella*, the Tempest-star, is sacred to him.

2. *Aigeira*. *Demi-goat*, head and neck of *Goat* in *Wreath*.

3. *Dymê*. *Fish*.

4. *Pellênê*. *Lyre*, *Ram's* head, *Tripod*, *Wreath*.

5. *Phlious*. *Bull* walking; butting; *Demi-bull*, butting; *Grape-cluster*.

6. *Sikyôn*. *Dove* (protagonistic type), *Lion*, *Lyre*.

XXIV. *Êlis*. *Eagle* (protagonistic type) *volant*, holding in beak *Serpent; volant*, tearing *Hare; volant;* head of; *statant*, on *Hare. Gorgon-head, Wreath.*

XXV. *Kephallênia.*

1. *Kranion. Bow; Bull*, head of; *Gorgon-head; Ram*, head of; demi, *statant*, foot of.

2. *Palê. Dolphin; Dog*, head of; *Ram.*

3. *Samê. Dog*, scenting, running, seated; *Bull*, head of; *Ram; Wreath.*

XXVI. *Zakynthos. Altar, Bowl, Bucranium, Lyre, Pêgasos, Tripod, Urn, Wreath.*

XXVII. *Kythêra.* Head of Aphrodîtê, wearing coronal (*stephanê*).

Bull, head of; *Dove, volant; volant*, holding *Wreath.*

After speaking of the temple of Aphrodîtê Ourania (='Aschthârth Melekhet Aschamâîm) at Ashqelûn, Hêrodotos (i. 105) observes, 'I find that the temple at Askalôn is the most ancient of all the temples to this goddess. For the one in Kypros, as the Kyprians themselves admit, was built in imitation of it; and that in Kythêra was erected by the Phoenicians, who belong to this part of Syria.' The temple in Kythêra was 'the most holy shrine of Ourania, and the most ancient temple of Aphrodîtê there is amongst the Hellenes' (Paus. III. xxiii. 1). At Athênai also was a temple of Aphrodîtê Ourania, who, says Pausanias (I. xiv.6), 'was first worshipped by the Assyrians, and after the Assyrians by the Paphians amongst the Kypriots, and by the Phoenicians who occupy Askalôn in Palestina.' As Aphrodîtê = Astartê-Istar (*i.e.*, 'Daughter-of-heaven'[1]), and 'Semiramis was Istar'

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[1] The etymology of Istar at once appears on a comparison with the cognate dialects:—Sum.-Ak. *Is*(-tar), Magyar *Is*(-ten),

(Sayce, *Hêrod.* p. 362), I will here notice the connexion with the Dove, the protagonistic type of the island of Kythereia, an Homeric Aphrodîtê-name (*Od.* viii. 288). Many held that the great shrine of the goddess of Hirê (Vide *inf.* p. 262) was one 'of the works of Semiramis, of whom so many exist in Asia, and that she set it up in honour of her mother Derketô. I saw a statue of Derketô [= A-targatis, 'Atar-'Ati. 'Ati = 'Αδά, 'the Babylonian Hêrê' (Hêsychios), the Phrygian and Ilian goddess Atê, confused by Homer with Athê-na.] in Phoenicia, and a strange sight it is, half woman, while the half from thigh to toe extends as the tail of a fish . . . In support of the legend they have the clearest evidence :—They consider fishes something sacred, and never touch them. In the case of birds, though they eat other birds, they abstain from eating the Dove, and this they hold sacred. These practices they consider are due to Derketô and Semiramis, the

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Kamacintzi *Esch*, Arintzi *Eisch* ('God'), Yenissei-Ostiak *Ês* ('heaven'); for, as Castrén observes, 'Allen altaischen Völkern am meisten den himmlischen Gott *Es* verehren' (*Die Finnische Mythologie*, p. 228). He gives *Asa* and *Yzyt* as south Siberian forms (*Ibid.* p. 186). The word reappears in the well-known Etruscan *Ais*-ar ('god,' or, rather 'gods.' Vide Suetonius, *Augustus*, cap. 97; Hêsychios: Αἰσοι· θεοὶ ὑπὸ Τυῤῥηνῶν). The *tar* in Is-*tar* = the Ak. *tur*, 'small,' 'young' (Cf. Ak. *tur*-rak, 'little-woman,' = daughter); Finnic *tar*, 'son,' 'child,' ty-*tar*, 'girl'; Mordvin *tsora*, 'son'; Magyar, *dér*, 'girl'; Asiatic Turkic *tura* (Vide Lenormant, *Chaldean Magic*, pp. 300-1), Etruscan *etera*, 'child.' *Is-tar* = 'Heaven-child.' *Tar* is the most common ending for the names of the female mythological personages mentioned in the *Kalevala*, the great epic poem of Finland; *e.g.*, Etele-*tar* (a daughter of the South-wind), Ilma-*tar* (Daughter of the Air), Kaleva-*tar* (the Daughter of Kaleva, = 'Hero'), Lowya-*tar* (the Daughter of Tuoni, the god of death; cf. the Ak. god *Tu*, 'Death'), etc.

former because Derketô wears the form of a fish, the latter because Semiramis ended by changing into a Dove' (*Peri tês Sy. The.* xiv.). Diodôros (ii. 4) explains the name Semiramis thus :—Ὅπερ ἐστὶ κατὰ τὴν τῶν Σύρων διάλεκτων παρωνομασμένον ἀπὸ τῶν περιστερῶν. The famous white doves which the Persians often drove away as offenders against the yellow (golden) sun (Hêrod. i. 139), were sacred to the white Moon-goddess, Lebhânâ-Leukothea. In Assyrian the Dove or domestic pigeon is called *Summâtu*, in modern Arabic *hamâmat* or *zamâmat;* and Diodôros thus refers to the connexion between the Aramean form of *su-m*(*a*)*-mat-u* and the name *Se-mer*(*i*)*-mis*. But this resemblance is merely a *paronomasia*, and Semiramis probably = Semi-Aramis. The goddess Simi, with which name Prof. Sayce compares that of the Hamathite divinity A-Shîmâ (2 *Kings*, xvii. 30) was the daughter of Hadad or Adad, 'a special name applied to the god Ba'al' (Hommel, *Anc. Heb. Trad.* p. 22; cf. Hadad-ezer, 2 *Sam.* viii. 3), Adôdos, king of the gods (Sanch. i. 7), in the cuneiform called Khaddki, Dadda and Addu. 'Accipe quid Assyrii de potentia solis opinentur. Deo enim, quem summum maximumque venerantur, Adad nomen dederunt. eius nominis interpretatio significat Unus-unus [= the Euphratean Dumuzi-Tammuz, 'the Only-son']. Hunc ergo ut potentissimum adorant deum sed subiungunt eidem deam nomine Adargatin' (Macrob. i. 23), *i.e.*, 'Atar-'Ati. Adad and 'Atarati thus form a divine pair, and as Simi is the daughter of Adad, so is Semiramis of Derketô; but Adad, the earlier form of whose name was probably Hôdad, South Arabian Wadd, is the βασιλεὺς θεῶν, and 'Aramis was probably the name of the supreme god of Carchemish' (Sayce, in *Trans.* S. B. A. vii. 260, n. 3), where we meet the name Aramis-sar-ilâni ('Aramis-is-king-of-the-gods'). Thus *Sar-ilâni* is translated by Βασιλεὺς θεῶν, and Aramis, identical or identified with Adad, is sire of Semi-aramis ('Simi daughter of Aramis') = Semiramis. Connected with Aramis, a Hittite name, are the Armenian name Arame, the Homeric 'country of the Arimoi' (*Il.* ii. 783 : ἐιν Ἀρίμοις = 'Inarime,' Ver. *Aen.* ix. 716), and king Arimos (Xanthos the Lydian, ap. Strabo, XIII. iv. 11). 'Ati or Ada is a Hittite name, for 'Êsâv married 'Adâh, daughter of Elôn the Hittite (*Gen.* xxxvi. 2). The names 'Assyrian' and 'Syrian' are often used very loosely by Classical writers; the 'White Syrians' (Λευκόσυροι) were Kappadokians (Phôtios, *Lex.* in voc.), *i.e.*, Hittites. Syria was anciently considered to begin at the river Halys (Hêrod. i. 6), and Katpatukka (Kappadokia) included the whole of eastern Asia Minor except Khilak (Kilikia). In the List of the Kings of Assyria compiled by Ktêsias, court physician to Artakhshatra I., from the Persian archives, and which has been preserved with variations by Eusebios, Synkellos, and Moses of Khorênê, Semiramis is placed as ruling next after Ninos ('= Nineveh.' Sayce.). This mistake has occasioned the writing of a large amount of fabulous history, *e.g.*, most of the second book of Diodôros, who relies mainly on the account of Ktêsias. The error arose thus :—The first-known Patesi ('Priest-king') of Assur (Assyria) is a ruler called Ismedagan ('"Dagon hearkened,"—Dagon being another name for Bel.' Hommel, *Anct. Heb. Trad.* p. 63; Vide *W. A. I.* III. lxviii. 21). Da-gan ('the Exalted') would be regarded as = Aramis, and *Isme* has been written *Semi*; hence Isme (otherwise Ishmi)-dagan = Semiramis. In Diodôros, Semiramis is nurtured by doves, found by shepherds, and taken to the king's chief herdsman, 'whose name was Simma.'

The other coin-type of Kythêra is the *Bull's* head, and the myth of the Lunar-goddess and her Bull or Bulls is both very archaic and widely-spread. In Classical times Selênê is styled Taurokerôs (*Pseudo-Orphic Hymn*, ix. 2), and her statue at Elis had horns from the head (Paus. VI. xxiv. 5). According to Olympiodôros, the Neo-Platonist, 'the ancient theologists' said that 'the Moon is drawn by two Bulls; by two, on account of her increase and diminution; by bulls, because as these [oxen?] till the ground, so the Moon governs all those parts which surround the earth' (MS. *Comment.* on the *Gorgias*. A Neo-Platonic explanation is almost always worthless. For representations of the bull-drawn car of Luna, vide Ottley, *On a MS. of Cicero's translation of Aratus*, 1835, Pl. xxi.; R. B. Jr., *V.* Fig. xviii.; Roscher, *Lex.* Part xxviii. p. 3137). So Astartê 'placed the head of a bull on her own head in token of sovereignty' (Sanch. i. 7); and appears on coins cow-headed or bull-headed accordingly, as 'She-Baal, the Cow,' (Tobit, i. 5), the Axiokersê ('Worthy-horned-goddess') of the Samothrakian mysteries. From a Euphratean centre the idea and the cult of a lunar goddess connected with the bull, ox, and cow, have spread alike to India (Vide Lajard, *Culte de Mithra*, Pl. lxvii. Fig. 8) and to the far West. She is the horned Iô ('the Goer'), the wandering Crescent-moon; but the horns of the two bulls—the two semicircles—make together the round full moon Kirkê ('the Circular,' vide R. B. Jr., *K.* 22-3), and her zodiacal reduplication is the lunar *Tauros*, whose symbol (♉) shows the full and crescent-moon combined, and is also, as in the archaic Euphratean ideographs, a rough representation of a bull's head and horns (Vide R. B. Jr., *V.* sec. ix.). The *Bull* (= *Hyades*) and *Dove* (= *Pleiades*) make up the constellation *Taurus.*

XXVIII. *Messênia. Eagle, Tripod.*

XXIX. *Lakônikê. Club*, 'between the stars of the Dioscuri'; *Eagle; Goat; Hêraklês*, head of, in *Lion-skin; Wreath.*

XXX. *Argolis.*

1. *Argos. Altar, Bow, Bucranium, Club, Crab, Dolphin, Eagle, Grape-cluster, Harpê, Horse* (head of), *Swan.*

Wolf. With this, the protagonistic type, may be compared the *Thêrion*, included by Aratos in the constellation *Kentauros,* and subsequently called *Lupus.*

Near Argos was located the contest of Hêraklês with the Crab (*Sup.* p. 145).

2. *Epidauros.* Head of Asklêpios (= *Ophiouchos,* vide *sup.* p. 169).

The Asklêpios of Thrasymêdês, enthroned and attended by his *Dog* and *Serpent.* His wife Êpionê (Paus. II. xxix. 1) is merely *ἤπιον,* 'gentle,' personified. His daughter Hygieia ('Health') 'does not seem to have been recognized in the city until the time of the Antonines' (Percy Gardner). His cult having been accepted by the Hellenes, he is, in accordance with the principle of Like to Like, brought into association with a divinity between whom and himself there was supposed to be a certain resemblance, and thus becomes the son of Apollôn by his bird the Crow (= *Korax*), personified as the nymph Korônis.

3. *Kleônai.* Head of *Hêraklês* in *Lion-skin*, *Lion's* head.

4. *Tiryns.* *Grape-cluster,* head of *Hêraklês* in *Lion-skin*, *Lyre.*

5. *Troizên.* Head of Athênê. Rev. Trident; (2) Trident, in field three *Dolphins;* (3) Trident and *Dolphin.* 'The Troizênians,' says Pausanias (II. xxx. 6), 'reverence their country, if any people do. And they say that Ôros[1] [= Tzur-os, *i.e.*, Tyre. Cf. 'Ζωρός, quem conditorem Cathaginis facit Appian. 8, 1 (צר Tyrus),' Gesen. *Script. Ling. Ph.* p. 415] lived first in their land,' which was called Ôraia after him. This statement naturally rather perplexed good Pausanias, who remarks that Ôros seems to him to be an Egyptian, not an Hellenic, name. He thus continues the mythic pedigree:—Lêïs (= Sem. Laish), daughter of Ôros (Cf. *Judges* xviii. 7, where Laish, as a locality, is a daughter of Phoenicia), became by Poseidôn the mother of Althêpos ('the Healer,' = Asklêpios). This genealogy affords an interesting instance how such pedigrees were at times composed. Here the invading city is personified as the first dweller in the country; then a place-name connected with her, is married to one of her divinities, the offspring of the union being another of her divinities. It is thus that we must deal with much of the mythic history and genealogies preserved by Pausanias; rightly understood they contain a very

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[1] It may be observed that the Bab. god-name Uras (Vide p. 219) reappears in 'the Assyrian king' Horus of Pliny (*Hist. Nat.* xxx. 51; vide Sayce, *Rel. Anct. Babs.* p. 152).

valuable residuum of archaic Hellenic records, such as we find scarcely anywhere else. During the reign of Althêpos one of those disputes between Hellene and Phoenician, so many of which are noticed by Pausanias, arose. The mythic form is carefully preserved, so we read, 'They say that Athêna and Poseidôn had a wrangle about the country, and determined to hold it in common, for thus Zeus ordered them to do. And on this account they [the Troizênians] reverence Athêna naming her Polias ['City-goddess,' a title the female equivalent of Melqârth] and Sthenias ['the Strong'], and Poseidôn they name "King,"' *i.e.*, Melekh (Cf. the Ammonite gods Môlekh and Milkôm, 1 *Kings* xi. 5, 7; Zeus Meilichios, etc.). The mixed population of Troizên thus, after the Phoenician fashion, resolved Poseidôn and Athêna into a divine Pair, Melekh and Melekhet-qârtha (= Gk. Astyanassa), the 'King' and the 'Queen-of-the-City.' 'And thus their ancient coins bear as a device a Trident and a head of Athêna.' We observe the accuracy of Pausanias in his account, and also that Troizên, like Athênai and the *Odysseia*, bears witness to the great contest waged between the Aryan Athêna and the Phoenician Poseidôn, and the forces which they respectively represented. 'And after Althêpos Sarôn reigned.' Sarôn is merely the Sem. *Seren*, 'Prince,' plu. *Serônîm*, a title only applied in the Old Test. to the five 'Lords' of the Philistines. Hence we may learn that the invaders established at Troizên one or more governors bearing this title of the land of Poseidôn-Dagôn. Next follows the usual baseless story, this time invented to explain how the Saronic Gulf got its name. Sarôn pursued a stag right out to sea, was naturally drowned, and the sea was named after him. 'They do not know who reigned afterwards until Hyparês and Anthas.' Hyperês [= 'the God above,' Êl-'Eliôn (*Gen.* xiv. 18), the Schamê-mêrum (Σαμημροῦμος)-Hypsouranios of Sanch. i. 3] gave his name to the neighbouring island, which was called after him Hypereia (Plout. *Keph. Hel.* xix.), afterwards known as Kalaureia, and now Poro. Anthas ('the Blooming,' *i.e.*, the Sun-god), was supposed to have founded the Boiôtian town of Anthêdôn (Paus. IX. xxii. 5); and the brothers form another Pair of Heaven-god and Sun-god. 'These were sons of Poseidôn and Alkyonê daughter of Atlas.' Alkyonê the Pleiad is a chief daughter of Atel ('the Darkness'—Atlas) who upbears (= brings into sight) the starry vault.[1] Êa-Poseidôn, god of the deep, is sire of Marduk-Merôdach, the Sun-god, who in another phase is the 'Blooming' (Anthas) but short-lived Tammuz. Hyperês = Ramânu, Hadad-Rimmon (Zech. xii. 11), Rhamas (Vide *sup.* p. 219); and, in a planetary sense, Hypsouranios, as Movers and Bunsen show, = *Saturn*. Such, in brief outline, are a few of the points connected with the coin-types of Troizên (Vide R. B. Jr., *Sem.* III. ix.).

XXXI. *Arkadia.* On the earlier general coinage of the Arkadians the *Eagle* appears, accompanying Zeus Aphesios ('the Releaser').

1. *Alea.* Head of Artemis. Rev. *Bow.* It must be remembered that in Arkadia under the name of

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[1] In the treasuries of Epidamnos at Êlis was a carving in cedar-wood by Theoklês, which represented the world upheld by Atlas, and Hêraklês and the Tree in the Garden of the Hesperidês with the Serpent (*Drakôn*) coiled round it (Paus. VI. xix. 5).

Artemis we meet with one, if not more, non-Hellenic goddesses. Thus the divinities or phases of divinity called Braurônia, Diktynna, Ephesia, Eurynomê, Heurippa, Hippia, Kallistê, Orthia, Taurika, etc., some of which have been referred to, are all linked together under the name of Artemis for the want of a better. At Alea were temples of Artemis Ephesia and of Dionysos, and at the annual festival of the latter, women were scourged, as the Spartan boys were scourged at the temple of Artemis Orthia (Paus. VIII. xxiii. 1). We thus notice a cruel and un-Hellenic cult common to the two divinities. The town was said to have been founded by Aleos (= *'Ελιεύς· Ζεὺς ἐν Θήβαις,* Hêsychios ; the *'Ελιοῦν* of San. i. 5, who was called Hypsistos; Êl-'Eliôn, *sup.* p. 231, after whom one of the seven gates of Thêbai was named the 'Hypsistan,' Paus. IX. viii. 3) son of Apheidas ('the Unsparing'), who is said to be a son of Arkas, and, as M. Bérard has shown (*Cultes Ar.* pp. 268-9) is one of the three phases of the latter. 'Arcas, le héros-enfant, le dieu-soleil, est un triple dieu l'infernal Apheidas, le céleste Elatos, et le fort Azan,' which latter personage is Azeus, a hero of the Boiôtian Orchomenos, and 'en Syrie, sous le nom d' *῎Αξων,* un fils de Melqart, fondateur d'Aza ou Gaza.' At every step we are led back to the Semitic East. Thus, to continue the pedigree, the son of Aleos was Kêpheus (Paus. VIII. xxiii. 3), who bestowed his name upon the adjoining town of Kaphyai. We here meet with the mysterious constellation-figure *Kêpheus* (Ph. *Kêph*, 'Stone.' So 'Simon, who is called Πέτρος', = Κηφᾶς), the King, described as the son of Eliûn, the chief Phoenician divinity.

2. *Hêraia. Bow, Dolphin, Tripod, Urn.*

3. *Kleitôr.* Said to be so called from *Kleitôr* ('the Renowned'), a son of Azan (Paus. VIII. xxi. 2). *Bull*, butting; *Centaur*, brandishing branch. The constellation-figure *Kentauros* in the Hipparcho-Ptolemy Star-list is represented as carrying a θύρσος. *Horse*, head and neck of, bridled; prancing.

4. *Mantineia.* *Altar*; *Bear*; *Bear*, head of (Vide *inf.* p. 256); *Dolphin*, held by Poseidôn.

5. *Orchomenos.* Kallistô (Vide *inf.* p. 263) seated, falling back, pierced by an *Arrow*; behind her young Arkas stretching out his arms.

6. *Pheneos.* *Bull*, *Ear-of-corn*, *Mare*, *Ram*, *Demi-ram.*

The somewhat unusual coin-type of a Mare is accounted for by the usual baseless story. They said Odysseus once lost his horses and found them here. As a matter of fact the place possessed temples of Poseidôn Hippios and Artemis (= Astartê) Heurippa (Paus. VIII. xiv. 4), the Pair of Semitic horse-divinities. The whole region also is much associated with Hêraklês. Here was shown the tomb 'of Iphiklês, brother of Hêraklês, and father of Iolâos (Vide *sup.* p. 216). And Iolâos the Hellenes say laboured in most things with Hêraklês' (Ibid. 5).

7. *Psôphis.* *Fish.* The protagonistic coin-type is a Stag, an animal which does not appear amongst the primitive constellation-figures of the Greeks; but, according to Prof. Sayce, it is found amongst the Euphratean constellations (Vide R. B. Jr., *E. S. R.* v. 28), and an antelope is often figured on the monuments, whilst the Stag occurs as an Ephesian coin-type, and is connected with the cult of Artemis Ephesia. The Greek and Phoenician sphere contains

a selection from the Euphratean with certain variations and additions.

8. *Stymphâlos.* Head of youthful Hêraklês in *Lion-skin.* Rev. Head and neck of crested *Bird.*

Hêraklês, naked, running, holds *Lion-skin* and *Bow*, and strikes with *Club.*

Bow and quiver.

'Stymphâlos, the founder of the town, was the third in descent from Arkas the son of Kallistô' (Paus. VIII. xxii. 1). The name is very interesting. Thus, we find '*Stembal*, filius Masinissae Polyb. 37, 3, ubi editum est Στέμβανον (lege Στέμβαλον). Contractum est ex Mastanabal' (Gesen. *Script. Ling. Ph.* p. 414), 'prob. clypeus Baalis' (*Ibid.* p. 410; vide *sup.* p. 203, the Boiôtian Buckler of Hêraklês, Lat. *clypeus*). Near this very ancient town (Cf. *Il.* ii. 608), clearly of Phoenician foundation, is located the scene of the contest between Hêraklês and the Demon-birds (*Sup.* pp. 34, 132). 'Concerning the Stymphâlos river there is a tradition that once man-eating birds [Vide the *Bird* on the coin] lived there; and these birds Hêraklês is said to have killed with his arrows. But Peisandros of Kameiros (Vide *sup.* p. 150) says that Hêraklês did not kill the birds, but only scared them away with rattles' (Paus. VIII. xxii. 4). As the Euphratean Marduk fights with and overcomes three Demon-birds (Vide Lajard, *Culte de Mithra*, Pl. lxi. Fig. 7), or contends with his arrows against a single Bird (*Ibid.* Pl. liv. B. 11), so Melqârth-Hêraklês, in the sphere, kneeling, from his bow shoots an Arrow (= the constellation *Oïstos-Sagitta*) against the three constellations the *Eagle*, the *Vulture* (= the Euphratean *Raditartakhu*, the Lämmergeier, Heb. *Tartak*, 2 *Kings* xvii. 31), and the *Bird* (*Ornis*), otherwise the *Swan*, *Kyknos*, another personage killed in battle by Hêraklês. The *Vulture* is also the Ph. constellation *Kinnôr* ('the Zither') = *Lyra*. On a familiar Florentine Gem, generally figured in illustrations of the twelve labours of Hêraklês, he is shown, kneeling on one knee, about to discharge an arrow at the three Birds, who are advancing in a line against him. The *Kinnôr* itself is practically a weapon of Hêraklês, for with it he kills Linos (Vide *sup.* p. 35). As a raging Sun-god, also a representative of the Phoenician human-sacrifice ritual, he is constantly, in the myth, slaying those near and dear to him (Vide R. B. Jr., *Sem.* III. viii. xxx.).

9. *Tegea*. *Gorgon-head;* Warrior with *Dog;* Athêna with *Gorgon-head*, which she places in a vase held up to her by *Steropê*.

Athêna handing *Kêpheus*, who faces her, the *Gorgon-head;* between them *Steropê*, who holds up vase to receive it.

This city, the name of which may be connected with the Sem. Tekoa, Tekoah ('the Pitching'—of tents), a name agreeing in sound but unconnected with the Gk. τέγη, 'a covering,' *i.e.*, 'the Well-covered' = 'Fortified,' is said to have been founded by Aleos (*Sup.* p. 232); and is particularly connected with Apheidas (Paus. VIII. xlv. 1), the tomb of whose daughter Leukônê ('the White-one,' = Leukothea) was shown there (Ibid. xliv. 7). 'They say that to Kêpheus son of Aleos it was granted by Athêna that Tegea should always be impregnable: they say that the goddess cut off and gave him a lock of the hair of Medousa ('the Protecting') for a protection of the city' (Ibid. xlvii. 4). This is the scene referred to on the coin-type; Steropê ('the Bright,' 'the Lightning-flash'), one of the Pleiads, and mythologically married to Arês, the Storm-god, holds up a vase to receive the head. This obscure and intricate, but most interesting, myth becomes lucid when we recall the position of Baal Tzephôn-Kêph (= Kêpheus), the god of the north, of storm, and of the thunderbolt, who is reduplicated in the constellation-figure *Kêpheus*. Athêna, on account of her warlike character, is at times considered by the Greeks as the equivalent of the war-goddess Astartê, the armed Aphrodîtê; so much so indeed that by some she was called Hippia (Ibid. 1), for which the usual baseless story was invented; though, as Pausanias well notes, the great majority of the Greeks did not so style her. When the myth is reduplicated in a stellar connexion *Kêpheus*, from his outstretched hand, drops the *Gorgon-head* (*β Persei*, *Algol*, *i.e.*, 'the Ghoul') down towards the *Pleiades*, where *Steropê*, the Storm-pleiad, is ready to receive it. The Tegeatans said that their country obtained its name from Tegeatês, son of Lykâôn (Ibid. xlv. 1), *i.e.*, the votary of Zeus Lykaios (Ibid. ii. 1), the solar Baal of the Semites, and that the wife of Tegeatês was Maira daughter of Atlas (Vide *inf.* p. 279). Tegeatês is merely a personification of Tegea, but the tradition links the place with the Phoenician cult, and, as is constantly the case, the stellar cult and stellar reduplication are found.

XXXII. *Hellenic Italy.* The coin-types of the Greek cities in Italy present the same general features as other Hellenic coin-types. The Gryphon, *Bull*, *Eagle*, *Ear-of-corn*, *Dolphin*, etc., appear much as elsewhere. I append a few specimens.

1. *Elea.* *Dolphin*, *Demi-lion*, *Lion*, *Quadriga*.

2. *Krotôn.* *Bull*, *Crab*, *Eagle*, *Eagle* devouring *Serpent*, *Ear-of-corn*, *Hêraklês* seated on *Lion-skin*, *Tripod*. Some coins not later than B.C. 600.

3. *Metapontion.* *Bowl*, *Bird*, *Bucranium*, *Ear-of-corn*, *Lion's* head.

4. *Neapolis.* Man-headed *Bull*, *Dolphins*, *Grape-cluster*, *Hêraklês*, *Lyre*, *Serpent*, *Tripod*.

5. *Poseidônia.* Poseidôn with Trident. Rev. *Bull*.

Poseidôn. In field, head and neck of *Sea-monster* (*Cetus*).

Bull, butting on waves; below, *Dolphin*.

6. *Rhêgion.* *Bird*, *Bow* and quiver, *Charioteer*, *Eagle*, *Ear-of-corn*, *Hare*, *Lion's* head.

7. *Sybaris.* *Bull*, *Fish*. Poseidôn, throwing Trident. Rev. *Bull*.

8. *Taras* (Tarentum). The Spartan Phalanthos 'took from the Barbarians Taras, the greatest and most prosperous of their cities on the sea. They say the hero Taras was a son of Poseidôn and of a nymph of the country,' and the city was called after him (Paus. X. x. 3, 4). Taras, then, was a 'barbarian' name; in fact it is a variant of the Ph. Tars, Tarsos ('the Strong'), and Taras = the Baal Tars, Zeus Tarsios. There are more than five hundred varieties extant of the silver coins of the city. The first type is:—

Head of Zeus. Rev. *Eagle*, with open wings, on thunderbolt.

This corresponds with the Tarsan coin above noticed (*Sup.* p. 165). Zeus, Jupiter = Baal.

The *Grape-cluster* appears on the coins of Taras, as on those of Tarsos (*Sup.* p. 167).

Horseman placing *Wreath* on head of his *Horse;* in field *Rudder* and Shell (Murex).

Hêraklês, with *Lion's* scalp. Rev. *Charioteer* in *biga*.

Taras on *Dolphin;* in r. hand *Bowl* (the Bakchic *kanthar*), in l. Trident. Melikertês-Palaimôn (= Melqârth-Baal-hamon) son of Poseidôn, is similarly dolphin-borne (Cf. Paus. I. xliv. 11); his statue at Korinthos showed him 'standing on a dolphin' (*Sup.* p. 212).

Other Coin-types are the *Club*, *Horse*, *Sea-horse*, *Hêraklês* strangling *Lion*, and *Tripod.*

9. *Terina. Bird*, *Crab.*

10. *Thourion. Bird*, *Bull*, *Dog*, *Dolphin*, *Horse*, *Lyre*, *Sea-horse*, *Tripod.*

XXXIII. *Eastern Hellas.*

1. *Phanagoreia. Bow* and *Arrow*, *Bull* butting, *Prow*, *Tripod.*

2. *Krômnê. Dolphin*, *Fish*, *Grape-cluster*, *Urn.*

3. *Sinôpê.* Head of *Eagle;* beneath, *Dolphin. Eagle* on *Dolphin* (Cf. the positions of the constellations *Aetos* and *Delphis*).

Grape-cluster, *Prow*, *Tripod.*

Poseidôn, in r. hand, *Dolphin*, in l., Trident.

4. *Myrleia.* Gibbous *Bull*, butting. This is the type of the zodiacal Tauros (Vide R. B. Jr., 30 *S.* Fig. 1, p. 23). *Grape-cluster*, *Lyre*, *Tripod*, *Wreath.*

5. *Kalchêdôn. Bull* standing on *Ear-of-Corn.* This interesting type is thoroughly Euphratean in character. In *C. E. A.* Fig. 7, p. 11, I have given a copy, from an unpublished Tablet in the Berlin Museum, of the *Bull* with the *Ear-of-corn*, the Istar-symbol, = *Tauros* + *Parthenos;* and the same combination appears on a Cylinder of black

marble in the National Library, Paris (Figured in Perrot, *Hist. Art in Chal.* ii. 145). It is a great mistake to suppose that such a design alludes merely to the ordinary operations of agriculture; and one simple proof of this is the monumental connexion between the Bull and the Lunar-crescent, representations of the Bull apparently in the air (Vide R. B. Jr., *C. E. A.* Fig. 8), and in other circumstances wholly unconnected with matters terrestrial.

Bull, head and shoulders of. Rev. *Triangle* (= *Deltôton*), formed by three *Ears-of-Corn*.

6. *Kios.* *Prow* (= *Argo*-type), ornamented with Star.

Bowl, *Club*, *Eagle*, *Ear-of-corn*, *Grape-cluster*.

7. *Hêrakleia Pontikê.* Head of *Hêraklês* wearing *Lion-skin*. Rev. *Demi-bull*, butting. *Bow*, *Club*, *Grape-cluster*.

Thus, a comparatively slight reference to Hellenic and connected coin-types reveals the fact that constellation-figures simply swarm amongst them; and, not only so, but that probably every single constellation, except *Ôrîon*, is, in some way, represented upon the coins. The foreign divinities Poseidôn with his *Dolphin*, Dionysos with his *Bowl*, Aphroditê (= *Parthenos*) with her *Ear-of-corn*, and Hêraklês (= *Engonasin*) with his *Club*, *Bow*, *Arrows*, and *Lion-skin*, appear in innumerable instances. *Kêpheus* is shown, and *Kassiepeia* as Britomartis, and *Perseus* as represented by the *Gorgon-head* and his *Harpê*; whilst *Andromeda* is probably figured on a coin of Rhodos and on a coin of Kyzikos (*Sup.* p. 178) showing a female head, which, as usual, has been in despair regarded as an Artemis. Arkas, the *Bearward*, is there, and Asklêpios, the *Snake-*

holder. There is the *Urn*, the special symbol of *Hydrochoös-Aquarius;* the *Archer*, the *Charioteer*, and the *Twins* (Dioskouroi).

And, when we turn from human figures, there, in great variety of types, are the *Serpent*, the *Horse*, the *Dolphin*, the *Lyre*, the *Bird*, the *Eagle*, the *Arrow*, the *Crown* (= *Wreath*), the *Ram*, the *Bull*, the *Crab*, the *Lion*, the *Goat*, the *Fishes*, the *Clusterers*, (= *Dove* and *Grape-cluster*), the *Dog*, the *Hare*, the *Ship* (= *Prow*, etc.), and the *Tripod*, connected with *Deltôton*.

There, too, in fewer instances, are found the *Bear*, the *Triangle* (*Deltôton*), the *Scorpion*, the *Sea-monster*, the *Altar*, the *Centaur*, the *Water-snake*, and the *Crow*.

The last constellation is the *Stream* (*Potamos*), which I have shown in a special monograph (*E.*) was originally 'that great river' the (Classical) Euphratês, which in the Old Test. is simply called 'the River.' The *River* and River-gods of divers forms, personifications of their several Streams, frequently appear on coins.

But further: unusual types such as the *Gibbous-bull*, the *Demi-bull*, the *Demi-horse*, the *Pêgasos*, are found alike on the coins and amongst the constellation-figures.

Lastly: the contiguous position of figures on the coins in various instances agrees with their celestial location, and suggests a harmony and connexion in idea between the two arrangements. Thus we find together alike on the coins and in the heavens :—

Hêraklês + *Arrow* (*Sup.* pp. 178, 194).
Hêraklês + *Serpent* (*Sup.* p. 190).

Lion (skin) + *Water-snake* + *Crab* (*Sup.* p. 190).

Eagle + *Dolphin* (*Sup.* p. 216).

Pêgasos + *Fish* (*Sup.* p. 167). Horse and Fish appear together on a fragment of a vase from Tiryns (Schliemann, *Tiryns*, 1886, p. 99).

Serpent-holder, = *Ophiouchos* + *Ophis* (*Sup.* p. 228).

Two *Fish-heads*, = *Ichthyes* (*Sup.* p. 177).

And there may also be cases, *e.g.*, the *Eagle* and *Hare* (*Sup.* p. 194), in which a coin-type indicates an astronomical fact. The *Goat* (*Aigokerôs*) and *Dolphin*, adjoining constellations, were also at times connected in art (Vide Athen. x. 84).

Thus, an immense series of coins, from cir. B.C. 700, shows us, in greater or less abundance, the constellation-figures as their types and symbols, with the single exception of Ôriôn, about whose antiquity as a constellation we require no evidence from this source. The testimony of the coins exactly agrees with that of the Greek writers from Eudoxos to Hêsiod ; and when we remember the conservative character of mankind with respect to their sacred traditions and religious beliefs, we may feel assured that all or nearly all of these figures were familiar to the mind of man, in some special association, for centuries ere they were impressed upon his coinage.

CHAPTER VI.

Homeric References to the Constellations.

We learn from Proklos that the great Epic Cycle purported to relate the history of the past, so far as it concerned the Hellenes, from the marriage of Ouranos and Gê down to the death of Odysseus by the unwitting hand of his son Têlegonos. Of some of the works contained in this Cycle even the names are lost, but the titles and a few unimportant fragments of the following compilations have come down to us,—the *Titanomachia*, *Danais*, *Amazonia*, *Oidipodeia*, *Thêbais*, *Epigonoi*, *Minyas*, *Oichalias Alôsis*, *Kypria* (after which in order of time came the *Ilias*), *Aithiopis*, *Ilias Mikra*, *Iliou Persis*, *Nostoi* (after which in order of time came the *Odysseia*) and *Têlegoneia*. Whoever may have written these works and at whatever date, it is certain that their loss has deprived us of a vast fund of highly valuable information. The *Ilias* and *Odysseia* always present themselves as chapters in a great historical story; and an immense number of incidental references in them, presuppose a general knowledge of this history on the part of their auditors. Here, therefore, as in the case of the Tragics, an enquiry such as the present suffers from the loss of an immense quantity of valuable material. We possess two superb stones, in a way complete in themselves, and two only, of those which originally formed the archaic temple of Hellenic history, tradition and belief. What details we may have lost it is impossible to say; but, to take an instance, in the *Kypria* was related the murder of Palamêdês (Vide *sup.* p. 137) by Diomêdês and Odysseus (Vide Paus. X. xxxi. 1); and had we the full Cyclic account of this hero and his achievements, it is more than probable that we should possess a reference to the constellation-figures, and possibly an account of them.

Another branch of epic hexameter poetry consists of the *Homeric Hymns*. Their date is altogether doubtful (B.C. 800-500), and they contain no direct reference to the constellation-figures. We find, however, the Dolphin in special connexion with Dionysos and Apollôn, whose Delphian shrine is constructed by Trophônios (= Baal Tropha, 'Lord-of-health.' *Terûphoh*, LXX. *ὑγίεια*. Vide Bérard, *Cultes Ar.* pp. 293-4) and Agamêdês ('the Great-measurer,' vide *sup.* p. 138; cf. the wise Agamêdê, *Il.* xi. 740, who 'knew all drugs as many as the wide earth nourishes'), representatives of the Semitic building-power (*Hym. eis Apol.* 296). Hermês is connected with the Tortoise and Lyre (Vide *sup.* p. 34); and, when sacrificing, he cuts the spoils into 'twelve parts, and a full gift-of-honour he offered to each' (*Hym. eis Her.* 128-9)—of the twelve divinities. At the period when the Hymn was written the theory of twelve great gods was fully established, and this number is not arbitrary but monthly and zodiacal (Cf. the twelve compartments of the rim of the Boiôtian Shield, *sup.* p. 206). Each of the twelve months of the Euphratean Year was presided over by one or more divinities; and it is very interesting to notice that when the twelve

Euphratean Signs of the Zodiac reached Hellas, what, I may call, Euphratean principles obtained in the allotment to each of an Hellenic divinity as its specially ruling power. And the same method naturally holds true with respect to the planets. As Istar (= Astartê-Aphrodîtê) was goddess of the 'Star of the morn and eve,' so to the Greeks Hesper-Phospher became the Star of Aphrodîtê, or, as the Latins said, of Venus. As Nabiu or Nabû ('the Proclaimer'—of the Sun), called by the South Arabians Anbai, the prophet and messenger of the gods, was the analogue of Hermês, so the Star of Nabû became the Star of Hermês, or, as the Latins said, of Mercurius, a god in origin wholly unconnected with the son of Maia. The Star of Bilu-Marûdûku (Bel-Merôdach) similarly became that of Zeus, 'the star of Jove so beautiful and large.' The Star of Nirgal, the war-god, became the Star of his analogue Arês, the Latin Mars. Lastly, the Star of the 'implacable' Ninip, 'a solar hero who belongs to the darkness and not to the light' (Sayce, *Rel. Anct. Babs.* p. 154), became the Star of the deposed and fallen sun-god Kronos. The following Table shows the Hellenic allotment of planets, Signs, and divinities:—

Domiciles of the Planets with the Guardian Sign-gods.

Hermês	*Karkinos*	☽	Moon—Sun	☉	*Leôn*	Zeus
Apollôn	*Didymoi*	☿	*Mercury*	☿	*Parthenos*	Dêmêtêr
Aphrodîtê	*Tauros*	♀	*Venus*	♀	*Chêlai*	Hêphaistos
Athêna	*Krios*	♂	*Mars*	♂	*Scorpios*	Arês
Poseidôn	*Ichthyes*	♃	*Jupiter*	♃	*Toxotês*	Artemis
Hêra	*Hydrochoös*	♄	*Saturn*	♄	*Aigokerôs*	Hestia

The principle on which the Signs were allotted to the planets was as follows:—The two highest 'thrones,' *i.e.*, the two nearest to the solar position at the summer solstice, *Karkinos* and *Leôn*, were assigned, one to the Moon, and the other to the Sun. The two next highest thrones fell to *Mercury*, as nearest to the Sun, and so on. But there was a real difficulty in allotting the Signs to the divinities, inasmuch as whilst the former were Euphratean, the great majority of the latter were purely Hellenic. Suffice it here to notice the arrangement, as not unconnected with the above mentioned passage in the *Hymn* to Hermês.

We now pass on to consider the references to constellation-figures and matters immediately connected with them, which are contained in the *Ilias* and *Odysseia*. There are few subtler and more difficult subjects of enquiry than those which cluster around these two mighty masterpieces, but with questions of authorship, date, composition, etc., we are not here directly concerned. One phase, however, of both Poems grows yearly more clear to the scientific modern student, viz., the vast extent to which they bear traces, not merely of Semitic, but also of distinctly Euphratean influence, whilst that of Egypt, unduly extended by Lauth (*Hom. und Aegypten*), is proportionately small. To illustrate this in detail would require a separate monograph, and a few prominent instances must suffice. Poseidôn, a leading figure in both poems, particularly connected with the Aithiopians ('the Sun-burnt ones,' *Od.* i. 22), is not merely the analogue, but is actually the Euphratean Êa himself, changed by time and circumstance. He most correctly describes (*Il.* xv. 187 *et seq.*) the ancient tripartite division of the world between Ana-Anu, the archaic Euphratean heaven-god (of whom Zeus is an Aryan analogue), Mul-lil ('the Lord-of-the-Ghost-world'), the Elder Bel (of whom Aïdôneus is an Aryan analogue), and himself the Lord of the mighty deep. No purely Aryan religion or mythology presents us with anything like this, the unique and distinguishing feature being that the Earth itself is not included in the division (Vide R. B. Jr., *Sem.* pp. 120-2). The entire *Odyssey*, again, is a duel between Poseidôn (Semitic power) and Athênê (Hellenic power), a contest renewed at Athênai itself, and with the same triumphant termination for Hellas. The realm of the dead is neither that of the Aryan nor of the Egyptian. It is in all its features the actual Euphratean 'House of Assemblage' (*K.* 162; cf. *Job*, xxx. 23) which was reproduced in the Scheôl of Israel and of Phoenicia. Phoenicians themselves, whether or not they include the Phaeacians, occupy an important position in the poems. Arts and sciences are in various ways connected with the Semitic East; and other Euphratean personages, such as Aphrodîtê, Dionysos, and Kirkê, who is Istar, and whose myth is merely a reduplication of that of Istar (Vide R. B. Jr., *K.*), appear as more or less prominent actors in the story.

A writer, or writers, who knew so much must of necessity have known more than is set down. We do not suppose that Homer (I use the name in a covering sense) was ignorant of the planet *Jupiter* because he does not refer to it by name. And although few things in literature are more familiar than the Homeric passages in which particular constellations are specially mentioned, yet the significance of the most familiar facts is constantly being misapprehended or altogether unrealized; and we shall find on examination that the references to our old friends the *Pleiades*, *Hyades*, *Arktos*, *Ôrîôn*, and *Boôtês*, necessarily imply far more than has been generally perceived or admitted. The immensely deadening effect produced by great genius upon subsequent time,—a melancholy fact,—has been never more conspicuously displayed than in the case of Homer. Because he names certain stars and constellations, innumerable successors have done the same. Because he speaks of *Boôtês* 'that setteth after a long time' or 'at length' (*Od.* v. 272), this characteristic is again and again repeated by later writers, *e.g.*, the 'piger Boötes' of Ovid (*Fasti*, iii. 405), and the 'pigri sarraca Boötae' of Juvenal (*Sat.* v. 23) such references being also a graceful way of showing a literary education.

It is noticeable that nearly the whole of the personages and objects which make up the constellation-figures are to be found in Homer. He does not mention Kêpheus, but, according to Athenaios (xiv. 32), he knew the name Kassiepeia, and wrote (*Il.* viii. 305),—

Καλὴ Κασσιέπεια θεοῖς δέμας ’εοικυῖα,

and he introduces Eurynomê (*Ibid.* xviii. 399; *sup.* p. 155) who is merely a phase of Kassiepeia herself. Perseus is 'most famous of all men' (*Ibid.* xiv. 320), whilst the Gorgon-head appears alike on the *aigis* of Athêna and the shield of Agamemnôn. It is certain therefore that the poet knew the story of Andromeda, and he speaks of 'the Sea-monster' (*Kêtos*, *Ibid.* xx. 147) against which Hêraklês fought, and says that Amphitrîtê had 'many such' (*Od.* v. 421-2). Cheirôn (the *Centaur*), Asklêpios (the *Snake-holder*), Ganymêdês, often considered to be the *Water* (or *Wine*)-*pourer*, Atlas the heaven-supporter, Ôrîôn, Hêraklês with Bow and Arrow, the ship Argô, the beautiful Sidonian Mixing-bowl (*Krêtêr*, *Il.* xxiii. 741), the Dolphin, as a kind of king of fish (*Ibid.* xxi. 22), the Lion and Bull (*Ibid.* xvii. 542), the Eagle and Hare (*Ibid.* 674-8), the Eagle and Swan (*Ibid.* xv. 690-2), the Bear, the Dog, the Twins, Kastôr and Polydeukês, are all familiar Homeric figures. It was a Water-snake which had bitten Philoktêtês (*Ibid.* ii. 723); and, as of course, the poems speak of serpents, horses, charioteers, archers, wreaths, lyres, birds, rams, goats, virgins, doves, fishes, streams, altars, and tripods. They do not, I think, mention crabs (which, however, appear in the *Batrachomyomachia*), crows and scorpions. Now setting aside for the moment the case of *Kuôn*, the only constellations undoubtedly referred to by Homer are the *Clusterers*, the *Bear*, *Ôrîôn*, and the *Ploughman;* for the *Rainy-ones* I regard as an asterism in a constellation. I am not in the least contending that when he speaks *e.g.*, of the Eagle and Swan or of the Eagle and Hare, he has any further meaning than to refer to them simply as living creatures ; and Prof. D'Arcy Thompson will have to deal with these passages (Vide *sup.* p. 141). But I do say it is a singular fact that the poems contain references to almost every figure which formed one of the primitive constellations; and those not mentioned (crab, crow, and scorpion) were familiar to everyone. And as in three universally admitted cases he refers to these figures in their constellational aspect, and with respect to one of them—Ôrîôn, both in a constellational, and in a pre-constellational, character, there is not the slightest reason to prevent us from believing that he may have been acquainted with every one of the primitive constellations of the Greeks, and referred to them all when he speaks of

τὰ τείρεα πάντα τά τ’οὐρανὸς ’εστεφάνωται (*Ibid.* xviii. 485),

‘all the Signs [not ‘stars,’ as in the corresponding Hesiodic passage] with which the heaven is crowned.’ Certain critics, almost as of course, have suggested that this is a spurious line, but have offered no reason worthy of the name in support of such a view. Constellation-figures had existed centuries ere the time of Homer, let that era be when it may. And what possible motive could there have been for the insertion of such a line? And how abrupt and rough in introduction the next line would have sounded without it. Hêphaistos wrought on the Shield ‘the unwearied sun and waxing moon,’ and, omitting line 485, ‘Pleiads and Hyads,’ etc. Line 485 explains why the poet does not say ‘*the* Pleiads,’ etc. But having said ‘All the Signs,’ etc., he proceeds to specify the usual protagonists *i.e.*, *Pleiads* and *Hyads* for the Zodiac, *Ôrîôn* for the Southern, and the *Bear* for the Northern Signs. It is as if he had said, ‘Pleiads and Hyads, and all the rest of them.’ He is not, like Aratos, writing a *Phainomena*. None but a thorough poetaster would have spoilt a splendid passage by the insertion of a long list of familiar names. Let us hear no more of the contemptible argument from silence. If *Boôtês*, unnamed in the *Iliad*, had not appeared in the *Odyssey*, how triumphantly it would have been asserted that Homer knew naught of him.

Old errors, however, die hard, and it will probably be declared by some that Homer was unacquainted *e.g.*, with the *Lesser Bear*, whose introduction into Greek navigation by Thalês has already been referred to (*Sup.* p. 148); and the authority of Strabo will be invoked in support of this contention. Let us therefore examine the question, first noting exactly what it is that Homer *does* say about the *Bear*. After having mentioned in one passage the *Pleiades*, *Hyades*, and *Ôrîôn* (*Il.* xviii. 486), and in another the *Pleiades*, *Boôtês* and *Ôrîôn* (*Od.* v. 272 *et seq.*), he, in both passages (*Il.* xviii. 487-9; *Od.* v. 273-5), uses the same words, 'And the *Bear* which they likewise call the *Wain*, which turns round without moving away [*ἀυτοῦ*, 'there on the spot.' Paley.], and keeps a watch on *Ôrîôn*, and alone has no part in the baths of Ocean.' *Pleiades*, *Hyades*, *Ôrîôn*, and even *Boôtês* 'after a long time,' set. 'The *Ploughman* as he sinks the deep receives' (Aratos, *H. D.* 581-2). Alone of all of them—not 'of all the Signs with which the heaven is crowned,'—the *Bear* sets not. Now over this very simple statement Strabo and many learned commentators, lumbering in his wake, have strangely blundered. Strabo (I. i. 6) argues thus:—How could the accurate Homer ('Homer, who is most accurate in everything,' Athen. v. 6) have said that the *Bear* alone does not bathe in ocean when it is obvious that many other stars do not? Therefore by the *Bear* he did not mean the *Bear* (although he made his obvious meaning still plainer by also calling it the *Wain*) but—the Arctic Circle! If 'bear' means 'arctic circle,' then anything may mean anything else, and chaos is come again. But, he continues, 'Let no one any longer blame his ignorance in being merely acquainted with one *Bear* when there are two.' This notion of Homer's ignorance, and of his being only acquainted with one *Bear*, arises from the prior mistake as to his meaning, the argument being,—The *Bear* alone of Signs does not dip (Homer): but the *Lesser Bear* does not dip: therefore Homer did not know of the *Lesser Bear*. Strabo does not even observe his own inconsistency for if, in Homeric parlance, *Bear* = Arctic Circle, the *Bear* would have included both *Bears*, and there would have been no ground for charging Homer with ignorance respecting the *Lesser Bear*. Nor, in this case, would there have been any ground for the next assumption of Strabo, who continues, 'It is probable [Admittedly he *knew* nothing on the point. How, indeed, could he have known the facts?] that the second [*Bear*] was not considered a constellation until, on the Phoenicians [not Thalês] specially designating it, and employing it in navigation, it became known as one to the Greeks.' And why, he might have asked himself, should the Phoenicians, whose maritime activity was at a very high pitch long ere the time of Homer, have waited until after his time before they 'designated' and sailed by the *Lesser Bear*. Why indeed? It is therefore obvious that there is nothing in Strabo to make us think that Homer was ignorant of the *Lesser Bear*; and so it becomes needless to notice the views of those many moderns who have merely repeated the error of the great geographer.

The only one of the five planets named by Homer is *Hesper-Phospher* that walks a star amid stars, fairest and brightest of all stars set in heaven (*Il.* xxii. 317-8; xxiii. 226; *Od.* xiii. 93-4). Will it be contended that he was ignorant of the other four planets? If there can be anyone who thinks so, let him re-read that superb description of the clear starry heaven which closes *Il.* viii. and of which Tennyson has given such a matchless rendering, a night when 'the immeasurable heavens break open to their highest,' and when 'all stars are seen,' and then let him recant so grievous a heresy. But, if the bard, whilst well wotting *Jupiter* or *Mars* or *Saturn*, did not choose to name them, although he might readily have done so, is it strange that he is silent concerning the *Ram* and his fellows, when there was no reason in the story to refer to them? Or, again, when wise Odysseus sailing by night,—for stars are sent by Zeus as portents for mariners (*Il.* iv. 75-6)), a thoroughly Phoenician opinion,—cunningly guided his craft with the helm, as he viewed the *Pleiads*, and the *Ploughman*, and the *Bear* keeeping watch upon *Ôrîôn*, and was mindful to keep the *Bear* ever on his left, did not he notice other stars and constellations? Above him blazed the *Lion;* in front were the *Twins* with *Prokyôn* on their left and the *Goat* (*Aix*) on their right. He noticed *Ôrîôn* on the horizon at his right front; and, as he viewed the *Pleiads*, he would of necessity behold all these far more conspicuous stars, as well as the Hyads, which, as they are mentioned elsewhere, it will probably be admitted that he saw. O yes, he saw all these, but he had no names for them; nor had it ever occurred to him to link these stars together as constellations. Human nature was, it would seem, so exhausted with the grand effort of grouping the stars of the *Arktos*, *Hyades*, *Pleiades*, and *Ôrîôn*, that for centuries after it absolutely forgot the art, just as an overworked brain suddenly breaks down and becomes a blank. Is it possible gravely to accept so ridiculous a theory? I think not, especially at the present time; and therefore I will now pass on to an examination of the constellation-figures admittedly referred to by Homer.

I. *Ôrîôn.* The figure of Ôrîôn is one of almost unique importance in the study of constellation-origins, because even the Homeric account of him enables us to see that he, like every other Sign, had a pre-constellational history, and was the development and outcome of an earlier and simpler idea. Man necessarily noticed light and darkness, day and night, dawn and twilight, morn and even, sun and moon, all of which formed grand natural pairs, before he began to group stars together. The idea embodied in each of the constellations was in existence long ere the constellation itself; and there can be no better illustration of this fact than the few and simple Homeric references to Ôrîôn. The goodliest of men (*Od.* xi. 310), he is beloved by Êôs (the Dawn), and slain by Artemis (the Lunar-power) in Ortygia (' Quail-land,' *Od.* v. 121-4. ' Flights of quails' are 'common in the Archipelago.' Merry.), = Dêlos. The gods, it is said, are jealous when goddesses openly mate with man. This is a bit of human nature introduced to explain a very simple fact, the real character of which had long been forgotten. The slain hero reappears in the Nekyia, still as the Mighty Hunter, and driving before him the phantoms of the wild beasts which he had erst killed 'on the lonely heights,'[1] armed with a mighty mace (ῥόπαλον) of bronze (*Od.* xi. 572-5). I have elsewhere (*G. D. M.* ii. 270 *et seq.*; *E.* sec. iv.; *K.* p. 146 *et. seq.*; *Sem.* pp. 172-3;) treated of the Ôriôn-myth in all its details, and to these passages I refer the reader; but surely no one can doubt that Ôriôn, whose name also appears as Uriôn, Aoriôn, Ôariôn (= Sem. Ury, 'the Fiery-one,' a well-known proper name. Cf. *Ex.* xxxi. 2; 1 *Kings*, iv. 19; *Ezra*, x. 24, + *ôn*[1]), and who in Phoenician Boiôtia, which claimed to be his birthplace, was also called Kandâôn (Tzetzês, in Lykophrôn, 328) = Sem. *Kôhain-dayan* ('The Prince—the Judge'), in origin is simply the sun, Dionysos ('The Judge-of-men,' *sup.* p. 193). The blinded Ôriôn (= the solar eye quenched at night) recovered his sight by journeying eastward through the Under-world (= the reappearance of the solar eye next day). Hommel notices that there are early traces in Pelosheth (Palestine) 'of a god Yara or Arî' (*Anc. Heb. Trad.* p. 224), who may be identical with Ôrî-ôn.

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[1] 'The heavenly hills are lonely because the solar hero is very frequently and naturally regarded as being alone.' As 'Dionysos he "wanders abroad through the boundless Olympos," the lonely Bellerophôn, the unattended Ôrîôn, Melqârth who hunts by himself [Μόνος δὲ ἐπὶ τὴν θήραν ποτὲ ἐξεληλυθὼς, οὐκέτι

But alike in *Iliad* and *Odyssey* Ôriôn, whatever he may have originally represented, has become a constellation, not a star merely; there has never been any question on this point. Seven stars form the *Bear-Wain*, the *Pleiad*, and *Ôriôn*. The giant hunter, the sun gigantic as compared with other stars, has been reduplicated, in accordance with a

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ἑωρᾶτο Μελίκαρθος, ὑπ' οὐδενὸς οὔτ' ἐφάνη οὐπώποτε αὐτοῦ τάφος. Sanchou. ii. 14], Dumuzi [= Tammuz] the "Only son" of heaven' (R. B. Jr., *K.* p. 147).

[1] Steinthal remarks that 'the formation of proper names of men and places by the termination *ôn* is excessively common' (In Goldziher, *Mythology among the Hebrews*, p. 408, note); and instances Dâg-ôn and Shimsh-ôn (Samson).

principle which we shall always find in force with respect to constellations, in a Sign inferior to none.

> 'And who, when night is clear,
> Beholds him stretched aloft, need not expect
> To see his better, though he search the sky'
> (Aratos, *H. D.* 323-5).

But the reduplication does not end here. The gigantic (Cf. Pindar, *Isth.* iii. 67: *φύσιν 'Ωαριωνείαν*) Ôrîôn, represented by the Boiôtian poetess Korinna 'as a noble and pious man, a civilizer of the barbarous country' (K. O. Müller, *Introd.* p. 347), the usual rôle of the Sun-god, when treacherously blinded, was kindly supplied by Hêphaistos with the Kabeiric dwarf Kêdaliôn ('One-who-takes-charge'—particularly of the Dead) to guide his footsteps eastward; and, in the *Kêdaliôn* of Sophoklês, a satyric drama, Ôrîôn appeared with the dwarf or boy upon his shoulders. Hence the proverb, which has come down to our own time, that a dwarf upon a giant's shoulder sees more than the giant can. I have given (*H. D.* Fig. xxxi. p. 39) a Phoenician design from Sardinia which shows the blinded Ôrîôn represented as an Ophiouchos, —a feature which links him with Eschmûn (Vide *sup.* p. 168) and Trophônios (Vide *sup.* p. 243; Paus. IX. xxxix. 2)—with the dwarf standing on his head. In other words it is Seirios, brightest of fixed stars, 'the star of summer[1], that above all others glitters bright after he has bathed in ocean' (*Il.* v. 5-6), 'the star that comes forth at harvest-time, and plain seen his rays shine forth amid the host of stars in the darkness of night,' this is the star 'which men call by name the *Dog* of Ôrîôn' (*Ibid.* xxii. 26-9). Whilst the Ôrîôn-sun is blinded in the Under-world, Seirios keeps watch above his head; and, 'brightest of all,' guides him, as it were, towards the healing east. And, so, when Ôrîôn becomes a constellation, Seirios attends the mighty hunter as his faithful hound. In Egypt, of old, 'Sahû and Sopdît, Orion and Sirius, were the rulers of this mysterious world of night and stars'; and Sahû was 'a wild hunter' who chased 'the very gods themselves' (Maspero, *The Dawn of Civilization*, 1894, pp. 96-7). Probably Sahû, like Ôrîôn, is a reduplication of a Euphratean original. In his constellation-references Homer has passed into astronomy pure and simple. The statement that the *Bear* watches *Ôrîôn*, is not in the least mythological, but merely a poetic and conscious personification of the two Signs. As an instance of how Ôrîôn is constantly put forward as a protagonist and representative of the constellations, in Is. xiii. 10 we read, 'The stars of heaven and the constellations (Heb. *Kisîlîm*, 'Strong-ones') thereof shall not give their light'; but the LXX. read *Οἱ γάρ ἀστέρες τοῦ οὐρανοῦ καὶ ὁ ’Ωρίων καὶ πᾶς ὁ κόσμος τοῦ οὐρανοῦ κ.τ.λ.* Here Ôrîôn heads 'the whole orderly-array of heaven,' and he is *par excellence* Kesîl ('the Strong-one,' *the* Constellation, *Job*, ix. 9; xxxviii. 31; Amos, v. 8).

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[1] Cf. Hêsiod, *Erga*, 584-7: 'The season of toilsome summer, when goats are fattest and wine best, and men weakest, when Seirios parches head and knees' (Vide *sup.* p. 157).

II. The *Bear*. This Sign is twice mentioned in Homer, and as a constellation only. A sort of formula is applied to it alike in *Iliad* and *Odyssey* (Vide *sup.* p. 250), and it is also known as the *Wain*. We will first consider the animal aspect of this stellar combination. I have observed (*Sup.* p. 128) that the actual configuration of certain stars naturally suggests particular figures; and the seven stars in question might conceivably, in themselves and apart from any other considerations, have been likened to a bear (Vide *sup.* p. 130), or to a wagon or chariot. Prof. Max Müller, having said that 'there is not a shadow of a likeness to a bear' in these seven stars, immediately qualified the statement by showing that some tribes have regarded them as being like a bear, whilst others have thought them like an elephant (*Lect. Sci. Lang.* 6th edit. ii. 397). His own theory of the origin of the *Bear*-constellation is very familiar. This animal Sk. *riksha*, Gk. *arktos*, Lat. *ursus*, Kymric *arth*, is 'the Bright-one,' 'so called either from his bright eyes or from his brilliant tawny fur.' With this we may compare the Makedonian name for the Bear—Κυνοῦπες or Κνωπεύς (Hêsychios), which possibly = κυνώπης, 'terrible-eyed.' But the stars are also the 'Bright-ones' (*rikshas*). 'The etymological meaning of *r*iksha, as simply the bright stars, was forgotten,' but everyone knew that *r*iksha meant 'bear.' 'And thus it happened that when the Greeks had left their central home and settled in Europe [It is quite a question whether they ever were in Asia in prehistoric times.], they retained the name of *Árktos* for the same unchanging stars, but not knowing why these stars had originally received that name [All this is pure hypothesis.], they ceased to speak of them as *árktoi*, or many bears, and spoke of them as the Bear.' With this view of the matter Haug does not agree, but, having observed that the 'Churl's Wain (Ursa major)' is in the *Avesta* called *Haptôiriñg*, 'in modern Persian *haftwarang*,' continues, 'This word is highly interesting from its identity with the ancient Vedic and Greek names of the same constellation.' He then says that the form *ṛiksḥa*, 'bear,' only occurs in *Rigveda*, I. xxiv. 10, and 'according to an account in the Shatapatha Brâhmaṇa, ii. 1, 2, 4 . . . was changed afterwards into that of *Sapta ṛisḥayaḥ*, "the seven Rishis" ['seers,' 'prophets,' 'sages'], by which name the stars of Ursa major are called in the later Vedic hymns.' He concludes, 'In the Iranian languages, however, the old name "the seven bears" was faithfully preserved' (*Essays on the Parsis*, 1878, p. 206). Now, first, how do we know that the Hindûs at any period ever called this constellation 'the Seven Bears'? We do not *know* this; it has been assumed because (1) *riksha* = *arktos*; and (2) the Greeks and Romans, 'apparently without rhyme or reason' (Prof. Max Müller. *I.e.*, he does not know the reason.), called the constellation (not 'the Seven Bears,' but) the *Bear*. To which reasons I will add (3) Haug's statement that the Avestic name *Haptôiriñg* means 'The Seven Bears.'

Let us turn to *Ṛigveda*, I. xxiv. 10. Aufrecht (*Die Hymnen des Ṛigveda*, 1877, vol. i. p. 17) reads, *Amī́ yá ṛíkshā níhitāsa uccā́ náktaṃ dádṛiṣre kúha cid díveyuḥ*. Grassmann (*Rig-Veda*, 1877, vol. ii. p. 24) translates, 'Die Sterne dort hoch oben, die sich zeigen des Nachts, wohin doch gehen sie am Tage?' H. H. Wilson (*Rig-Veda-Sanhitá*, 1850, vol. i. p. 63), who represents an earlier stage of scholarship, and embodies the traditional rendering of Sâya*n*a, translates, 'These constellations placed on high.' He misses the force of the question, but observes, 'The constellations, *Ṛiksháh*, may be either, it is said, the seven *Ṛishis*, Ursa Major, or the constellations generally.' And, lastly, Prof. Max Müller himself renders the passage, 'These stars fixed high above, which are seen by night, whither did they go by day'? (*Lects. Sci. Lang.* ii. 396). Now in all this there is not a word about bears. Nobody asked, 'These Bears, which are seen by night, where do they go by day'? But—'These Bright-ones,' etc. The Bear may possibly have been so-called 'from his bright eyes, etc,' but he certainly does not seem to have been referred to in this famous passage. Next, does Haptôiri*n*ga (Darmesteter's form of the name, which he does not translate), or *Haptôiriñg* mean 'the Seven Bears.' The Av. *hapta* of course = Gk. *hepta*, Vedic *sapta*, Lat. *septem*. Haug says the modern Persian form is *haftwarang*. Here the Per. *haft* = Av. *hapta*. But *warang*, which in modern Persian means 'a patch; a darning' (Steingass, *Pers.-Eng. Dict.* p. 145) is surely not a correct form. Dr. Steingass, a great authority on such a point, gives, '*Haft aurang*, The constellation of the Great Bear; the seven heavens'; and the primary meaning of *Aurang* (p. 119) is 'a throne.' The Haptôiri*n*ga, later called Haftôiring (Darmesteter, in *Sacred Books of the East*, vol. xxiii. p. 89) are not 'the Seven Bears' but 'the Seven Enthroned-ones,' seated on high 'in the recesses of the north' (Is. xiv. 13, which compare in connexion with the idea of height and the north).

Failing to obtain any explanation of the *Bear*-constellation from a comparison with the primitive asterisms of India and Persia, will Babylonia help us to account for the form? There was a Euphratean *kakkab Dabû* ('Bear-star' or 'constellation'), Heb. *Dôb;* and we read, 'If the Star of the *Bear* return, misfortune is in the land' (*W. A. I.* II. xlix. No. 4, l. 44). Moreover, the Rev. Wm. Houghton, author of *Gleanings from the Nat. Hist.*

of the Ancients, and many admirable papers, and who combined in a high degree the knowledge of the Naturalist and of the Assyriologist, was of opinion that certain animal-names in the List in *W. A. I.* II. vi. Cols. C. D. were astronomical bear-titles connected with *Ursa Maj.* One of these names he rendered 'the bear making its crownship,' and explained it by the circling 'of the Great Bear around the polar star' (*Trans.* S. B. A. v. 334). This view, however, I am unable to accept, inasmuch as (1) The *kakkab Dabû* was a 'returning' star, and so could not have represented the *Wain*-stars which are always above the horizon. (2) The *Wain*-stars were emphatically not of bad omen. (3) I cannot get any such meaning as 'the bear making its crownship' out of the Ak. name in question. (4) Delitzsch and Lenormant do not understand any names in the list as having any reference to *Ursa Maj.* And (5) we have positive Classical testimony, which I have often quoted elsewhere, that the two *Bears* were not Euphratean constellations. Achilleus Tatios declares, 'Εν τῇ τῶν Αἶγυπτίων σφαίρᾳοὔτε ὁ Δράκων ἐστὶν νομζόμενος ἢ ὀνομαζόμενος οὔτε Ἄρκτοι, οὔτε Κηφεύς, ἀλλ' ἕτερα σχήματα εἰδώλων. Οὔτω δὲ καὶ ἐν τῇ τῶν Χαλδαίων (*Eisagôgê*, xxxix.). He had every means of knowing the facts, and so far as we can test this statement *aliter*, it is absolutely correct. Thus the Kemic constellations of this part of the sky were the *Haunch*—of an Ox (= the *Wain*-stars), the female *Hippopotamus*, the *Crocodile*, the *Giant* and (another) *Crocodile*, the *Lion*, etc.; and, as noticed (*Sup.* pp. 29-30), the *Serpent* (*Drakôn*) and *Kêpheus*, were not Euphratean, but Phoenician constellations. It must be remembered also that a large number of Euphratean names of stars and constellations which have not passed into usage in the West, are to be found on the Tablets; and that various stars and constellations have more than one, or even many, names.

At this point in the enquiry, as I have observed elsewhere (*Sem.* p. 63 *et seq.*), we are greatly assisted by the learned and sober researches of Bachofen (*Der Baer in den Religionen des Alterthums*, 1863), who has carefully examined most of the instances in Classical literature where the Bear is referred to, or where bear-names occur; and who also gives various illustrations of the Bear in Classical art. The result thus arrived at, may be stated as follows:—The Ancients were greatly struck, not so much by the size, etc., of the animal, as by her extraordinary affection for her young; and attributed to her strange and special powers of licking them into shape, etc. Briefly, the maternal, and hence fostering and kindly, aspect of the Bear, which in Greek is always feminine, ἡ Ἄρκτος, 'the fem.,' as Liddell and Scott observe, 'being used even when both sexes are included,' is the protagonistic idea in the mythologico-religious treatment of the animal. The Semitic world was equally aware of this same characteristic. Only 'a fool in his folly' is worse to meet with than 'a bear robbed of her whelps' (*Prov.* xvii. 12). To be 'chafed in mind, as a bear robbed of her whelps' (2 *Sam.* xvii. 8; cf. Hos. xiii. 8) was a proverbialism; and the Bear of the shores of the Mediterranean stands before us as *Ursa matronalis*, symbol of that fostering love which will do and dare all on behalf of the objects of its affection. Such an animal naturally became connected with the cult of the Great Goddess Mother of Western

Asia, and here M. Bérard ably continues the researches of Bachofen, observing, 'L'ours, comme le cheval, est un animal sacré des Syriens : dans la cour de la déesse syrienne, à Hiérapolis, il y a des *ours* auprès des lions, des aigles, des chevaux et des bœufs ; tous ses animaux [all prominent constellation-figures,] sont apprivoisés et sacrés (*Peri tês Syriês Theou*, xli.; Renan, *Phénicie*, p. 292) ; sur les gemmes de Chypre et de Syrie, l'Amour apparaît souvent à cheval sur un ours ou jouant avec un ours (O. Keller, *Thiere des Klassisch. Alterth.* pp. 106-128) ; comme la vache et la cavale, l'ourse, toujours en rut ['cette lubricité' is merely 'prétendue'], est la bête d'Aphrodite' (*Cultes Ar.* p. 130). According to Porphyry, as Bachofen notes, Pythagoras, who was a native of Samos, a locality famous for the cult of the Great Goddess, whom there the Hellenes not unnaturally identified with their Hêra, speaking 'symbolically and in mystic fashion,' calls Bears 'the hands (*i.e.*, assistants) of Rhea' (τὰς ἄρκτους Ῥέας χεῖρας), meaning apparently that they were exemplars and supporters of the *dignitas matronalis*. And this leads us directly to Helikê (the 'Twister'—around the pole) and Kynosoura (popularly called *Dog's-tail*, perhaps meaning in Gk. *Dog-guardian*), *Ursa Maj.* and *Ursa Min.*, themselves. For, when Rhea was about to give birth to Zeus, she retired to Kretan Lyktos and hid the infant in a cave (Hêsiod, *Theog.* 477-84), where he was nurtured by two bears. And Aratos, repeating the ancient story from Agaosthenês (*Sup.* p. 153) of Naxos, says :—

> 'From Krete to heaven these [Bears] by the will of Zeus
> Mounted, what time they him concealed a babe

In odorous Diktê, near the Idaian hill,
Within a cave and nourished him a year,
Whilst the Kourêtes Kronos were deceiving' (*H.D.* 31-5).

All or nearly all of the mythological stories about the Bear, show the animal in the same kindly light, and frequently in a Semitic connexion. A bear suckles Atalantê in whom 'nous retrouvions tous les attributs de la déesse syrienne' (Bérard, *Cultes Ar.* p. 131). Kallistô, the mother of Arkas, is turned into a bear and then 'made into the stars called the *Great Bear*' (Paus. VIII. iii. 3); and Kallistô, who appeared with her bear-skin in the great painting of Polygnôtos at Delphoi (Ibid. X. xxxi. 2), is only Artemis Kallistê, the Semitic 'Reine-Mère.' 'Comme le mot sémitique, dont il est la traduction, *καλλίστη* célèbre tout à la fois la beauté et la bonté de la déesse' (Bérard, *Cultes Ar.* pp. 202-3). To make the story intelligible to later ages, a strictly human element is introduced in Euhemeristic manner. Zeus becomes the faithless husband, Hêra the jealous wife, Artemis the avenging friend, etc. But all this is merely a layer of dust and ashes over the facts of the case. Arkas (Gk. 'The Bright'), son of Zeus Lykaios (= Baal Khamman or Hamon = Palaimôn) and the beautiful ('Kallistê') Phoenician goddess, at once virgin and mother, like other youthful Sun-gods, dies and comes to life again, and also exhibits the familiar Semitic aspect of triplicity (Vide *sup.* p. 232). He naturally became *Arktophylax* (*Katas.* viii. Hyginus and the Schol. on Aratos and Germanicus agree.), the '*Bearward*,' a solar personage reduplicated, like Ôrîôn, in a constellation, and also called Boôtês, the '*Ploughman*,' '*Herdsman*,' or '*Shouter*'—at the *Bear*.

Kallistô-Kallistê, the beautiful mother-goddess is, like Rhea, connected with the Bear, and also with the Semitic East; and *Ursa Maj.* = Kallistô ('the Beautiful'—constellation). Again, we notice that both the *Bears* and the *Bearward-Ploughman*, who like *Ursa Maj.* is known by two different names, are connected with the Semitic East. The same idea of the *Ursa Matronalis* and the same connexion between the Bear and the Semitic goddess, appear in the well-known ritual of Artemis Braurônia (Vide R. B. Jr., *Sem.* Part II. xxi., where the matter is discussed at length). And it is to be observed that at Braurôn the bear-maidens passed 'round the temple,' just as Kallistô in heaven passes slowly round the sacred spot occupied by the Pole-star; so that their dance, like many others, was probably connected with and to some extent imitative of the eternal stellar dance, which 'the moving gems of night,' as Aratos calls them, ever perform around the central and highest throne. The Bear, then, the nurturing fostering creature, remarkable in itself, sacred to the Great Goddess, and not altogether unsuggested by the configuration of the *Wain*-stars, was chosen in astronomico-religious thought to guard the pole. *Ursa Min.* with her seven stars and long tail is an exact reduplication of *Ursa Maj.*, and guarded the other side; particularly when the Pole-star, called in Euphratean parlance 'the Judge-of-heaven' (Ak. *Tir-anna*, Bab.-As. *Dayan-samê*) was α or κ *Draconis*. And this fact it is, which is so pompously alluded to by Euripidês when he says that the tails of the *Bears* 'guard the Atlanteian pole' (Vide *sup.* 133).

An interesting illustration of the *Ursa Matronalis* aspect occurs in mediaeval art in the sculptures of the 'Tower of Giotto' at Florence, thus described by Mr. Ruskin:—'The next sculpture is of Eve spinning and Adam hewing the ground into clods. . . Above them are an oak and an apple-tree. Into the apple-tree a little bear is trying to climb. . . The figure of the bear is again represented by Jacopo della Quercia, on the north door of the Cathedral of Florence. I am not sure of its complete meaning' (*Mornings in Florence*, 4th edit. 1894, pp. 159-60). The Bear, trying to get the fatal apple, is thus connected with Eve, Universal Mother, the great *Ursa Matronalis*. As noticed (Sup. pp. 176, 233) it appears on coins of Hadrianothera and Mantineia. M. M. Imhoof-Blumer and Otto Keller (*Tier- und Pflanzenbilder auf Münzen und Gemmen des Klassischen Altertums*, 1889, Tafel xvi. 8) figure a gem which they thus describe, 'Sapphirin-Chalcedon-Scaraboid der Pariser Sammlung 1093. Zwei Bären antipodisch um ein Schlange. Es bedeutet die Constellation der Schlange zwischen dem grossen und kleinen Bären' (p. 98). On this Prof. D'Arcy Thompson remarks, 'They do not state, and perhaps did not perceive, that there is a deeper astronomic interest in this gem ['from Asia Minor'], to wit, that as nearly as may be its centre coincides with the North Pole of the heavens in the epoch of classical Greece' (*Bird and Beast in Anct. Symbolism*, p. 190). So far as I am aware, there is no other indication of the age to which the representation belongs. M. M. Imhoof-Blumer and Keller also figure several other gems representing bears. M. Svoronos (*Types Mon. des anciens*, p. 116) is of opinion that in the case of some Kretan coin-types, *Ursa Maj.* is represented as a Cow, hence *Boôtês* as 'the Herdsman'; and *Ursa Min.* as a Dog ('Chienne,' cf. *Kynosoura*, *Kynoupês*), a Zeus-suckler. It frequently happens that when animals become extinct in any region, the creature supposed to be most closely akin to them takes their place in art, myth, and legend. Lastly, the Homeric *Bear* was not the constellation as it appears in the Hipparcho-Ptolemy Star-list, but was conterminous with the seven stars of the *Wain*, which latter stellar concept I will next consider.

The ordinary theory about the *Wain* is merely that some early Hellenes thought these seven stars resembled a wagon; and this, in the abstract, might be perfectly true, only we could never know that it was true. But, as on examination we find constellation after constellation either obviously directly borrowed from the Semitic East, or else connected with it in different ways, we are bound to enquire if *Wain-* or *Chariot*-stars appear in the Euphratean sphere. And, little as we still know of this; scattered, fragmentary and imperfect as are the notices of it which so far we have been able to piece together, as regards the *Wain*-stars the evidence is fortunately clear and conclusive. These seven stars were called in the Euphratean sphere the constellation (Sum.-Ak.) *Mar-gidda*[1] ('the Long-chariot.' Vide Brünnow, *Classified List*, ii. 252. Not 'Lastwagen,' as Prof.

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[1] Jensen, *Die Kosmologie der Babylonier*, 1890, p. 148, wrongly supposes that *Margidda* was near the ecliptic, because in *W. A. I.* III. lix. No. 15, Rev. l. 7, we read:—'The Sun sets and in its place the constellation of the *Long-chariot* is fixed.' The meaning is that the constellation was fixed in its *own* place, not in the spot where the Sun had set. At sunset the *Wain*-stars

Hommel, *Die Astronomie der alten Chaldäer*, iii, 4, n. 3, renders it.), which 'all the year is fixed' (*kal satti izzaz*, *W. A. I.* III. lii. No. 1, Rev. l. 24), *i.e.*, around the pole. And this simple astronomical dictum is expressed, or possibly even translated, by Homer, when he says that it 'turns round without moving away' and does not bathe in ocean (*Sup.* p. 250). The *Bear* was the Mediterranean, the *Wain*, originally the *Long-chariot*, was the Euphratean, name of the constellation; which, like others, had various appellations. It was particularly connected with Mul-lil, Lord of the Under-world and the Night-world (Vide *sup.* p. 246); and in this aspect was called *Wul* (= Mul)-*mo-sarra* ('The Lord-the-voice-of-the-firmament.' *Mul* or *Wul* = *Bîlu*, *Bêl*, *Baal*, 'Lord'). In *W. A. I.* II. xlviii. 56 *Margidda* itself is described as 'the Lord-of-the-Ghost-world' (As. *Bîlu zakki mâti*), which practically makes it a nocturnal manifestation of Mul-lil. High enthroned in the north, by its splendour it awed and ruled the wandering phantoms and powers of darkness. And this description is also especially interesting, inasmuch as it enables us to see clearly how thoroughly Euphratean in origin are many of the Iranian stellar fancies and beliefs. In the Iranian scheme Haptôiringa (= the *Wain*, vide *sup.* p. 259), the leader of the northern stars, is 'entrusted with the gate and passage of hell, to keep back those of the nine, and ninety, and nine hundred, and nine thousand

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become visible. Jensen's mistake is the more remarkable, because the scribe goes on to say, 'the Sun sets and in its place' this or that planet, star, or constellation is fixed. Surely he does not suppose they were all fixed together in the place of the Sun?

and nine myriad demons, and demonesses, and fairies (Pairikas) and sorcerers (Yâtus) who are in opposition to the celestial sphere and constellations' (*Minokhired*, xlix. 15, ap. West). This is merely an expansion and intensification of *Margidda*, ruler of the ghosts.

The labours of Lacouperie have demonstrated that a very early connexion existed between the civilizations of the Euphrates Valley and of China; and have enabled me to show that the Chinese Lunar Zodiac is Euphratean in origin (Vide R. B. Jr., *E. S. R.* Part v.) Various Euphratean astronomical names and ideas reappear in the earliest phases of Chinese astronomy; and 'the high honour always and everywhere paid to this grand constellation, which we call Ursa Major, is well shown in its ancient astrological Chinese title Ti Cheh (Schlegel, *Uranog. Chinoise*, 502, 706), the Chariot of the Supreme. Its more modern Chinese name is Pêh-Tow, Northern Bushel' (O'Neill, *Night of the Gods*, ii. 938). Thus does the Euphratean title of the *Chariot* appear to have penetrated to the farthest East; and the Phoenicians, who were direct emigrants from Southern Babylonia (Cf. Hêrod. i. 1; vii. 89), naturally introduced it into Hellas. In the Babylonian sphere the *Long-chariot* was distinct from the *Chariot* (Sum.-Ak. *Gar*, Bab.-As. *Rukubu*, Heb. *Rekhev*) of *Auriga*, around which the Moon is described as circling (*W. A. I.* III. li. No. 9, l. 28); and I apprehend that, in accordance with the names *Ursa Maj.* and *Ursa Min.*, and with the stellar configuration,—for the *Lesser Bear* also consists (chiefly) of seven stars situate in a similar manner to those of the *Greater Bear*,—the *Long* (or *Great*)-*chariot* was so called to distinguish it from the *Little-chariot* (= *Ursa Min.*), a name not as yet found in the Inscriptions, and which in Ak. would be **Marturra.* These two fiery Chariots[1] guarded the sacred Pole-star, for, as Hipparchos says, *῎Εστιν δέ τίς ἀστὴρ μένων ἀεὶ κατὰ τὸν αὐτὸν τόπον. Οὗτος δὲ ὁ ἀστὴρ πόλος ἐστὶ τοῦ κόσμου* (*Tôn. Arat. kai Eudox. Phai.* i. 5). The idea of protection by fiery chariots occurs in our own Sacred Books (2 *Kings*, vi. 17 ; *Ps.* lxviii. 17) ; and the Pole-star is ‘the god Dayan-samê, which over against the midst is bound’ (*W. A. I.* III. lii. A. l. 58). Hêsychios gives ῎Αγαννα· *ἄμαζα . . . καὶ ἡ ἐν οὐρανῷ* ῎Αρκτος. It is quite possible that *Aganna* may have been a local (Kretan) name for a wagon ; but more probably it obtained that meaning because it was a name of the *Arktos-Amaxa.* The form of the name is thoroughly Akkadian, in which language it would mean ‘Lord-of-heaven’ (Ak. *Ak-anna.* Cf. *Tir-anna*, *sup.* p. 264 ; *Ninsi-anna*, ‘Lady-of-the-garden-of-heaven,’ *Venus ; Gut-anna*, ‘Bull-of-heaven,’ *Taurus*, etc.). Various Akkadian astronomical names have been preserved by Hêsychios (Vide R. B. Jr., *Remarks on some Euph. Astronom. Names in the Lex. of Hêsychios*, in *The Bab. and Orient. Record*, July-August, 1887) ; and therefore there would be nothing surprising in the circumstance. According to Clemens Alex. (*Strom.* v. 6), ‘those golden figures, each of them with six wings [which stood in the Tabernacle], signify either the two Bears, as some will have it, or rather the two hemispheres,’ a foolish notion, but one which shows the importance ascribed to the *Bears*.

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[1] ‘The square of the Little Bear was called by the Greeks and Romans the Chariot, or the Four wheels of the Chariot’ (Bunsen, *Egypt's Place*, iv. 350). *Ursa Min.* was by the Latins also called *Plaustrum minus.*

III. *The Clusterers.* Throughout Greek literature which has any relation to the heavens the Pleiads are mentioned. In Homer they occur twice (*Il.* xviii. 486; *Od.* v. 272), each time at the head of the Signs; and they form the subject of a long disquisition in Athenaios (xi. 76-83), which begins with a consideration of the Cup of Nestôr, 'four handles there were to it, and round each two golden doves were feeding' (*Il.* xi. 633-5). The speaker in Athenaios continues, 'So after the poet had represented the cup of Nestôr as studded with stars, he then proceeds to the most powerful of the fixed stars, by contemplating which men form their conjectures of what is to happen to them in their lives, I mean the *Pleiades* . . . He does not mean . . . turtle-doves . . . But calls that constellation *Peleiades* which at present we call *Pleiades*; by the rising of which men regulate their sowing and reaping, and the beginning of their raising their crops, and the harvesting of them.' He then quotes Hêsiod and Aratos on the *Pleiades*, and proceeds, 'It is with great appropriateness that the poet has represented the *Pleiades*, who indicate the time of the generation and approach to perfection of the fruits of the earth, as forming parts of the ornaments of the cup of that wise prince Nestôr. For this vessel was intended to contain any kind of food, whether solid or liquid; on which account he also says that the turtle-doves bring ambrosia to Zeus, "By this way even winged things may never pass, nay, not even the timorous doves that bear ambrosia to father Zeus" (Od. xii. 62-3). For we must not think here that it is really the birds called turtle-doves which bring ambrosia to Zeus . . . but the daughters of Atlas, turned into the constellation of the *Pleiades* or doves . . . And that he considers the *Pleiades* as the most famous of all the fixed stars is plain, from his having placed them first when giving a list of other constellations . . . Myrô the Byzantian admirably caught the feeling of the Homeric Poems, saying in her poem entitled *Memory*, that the *Pleiades* convey ambrosia to Zeus . . . The *Pleiades* are close to the tail of the *Bull*,' which was sometimes, as on coins, represented as a Demi-bull, sometimes in full. 'There were four *Peleiades* on the handles, and two more . . . under the pedestal . . . and in that way there are six *Pleiades* in all, since that is the number which are seen, though they are said to be seven in number, as Aratos says.' As Homer declares of the ambrosia-bearing doves, 'The sheer rock evermore takes one even of these away, and the Father sends in another to make up the tale,' the speaker in Athenaios regards him as saying enigmatically 'that, though there are only six *Pleiades* seen, still their real number is not actually diminished.' Prof. D'Arcy Thompson agrees in the connexion between the Doves of *Od.* xii. and the *Pleiades*, remarking, 'Not to be dissevered from this connexion is the story of the Dove of the Argonauts, which flew between the clashing rocks in the passage of the Hellespont. Was not that Βόσπορος a transit through the Heavenly Bull, and is it going too far to see in the *Sym-Plegades* a name (corrupt by popular misunderstanding) akin to *Plejades*' (*Bird and Beast*, p. 185). Be all this as it may, I quote Athenaios chiefly to show the great importance of this very famous and protagonistic constellation.

Next, as to the meaning of the name. Dr. Theophilus Hahn, in his excellent monograph *Tsuni-‖Goam the Supreme Being of the Khoi-Khoi*, 1881, after having stated that amongst the Khoi-Khoi ('Men-of-men'), who by the Dutch were contemptuously called Hottentots (= Low Germ. Hüttentüt, 'Quack,' 'Gibberish-speaker'), the *Pleiades* are called *Khunuseti* which means '(1.) Those who stand together: (2.) Those who are heaped: (3.) Those who stand together like fingers: (4.) Those who cluster together: (5.) The thorn-stars'; and having compared this name with the Lat. *Vergiliae*,[1] 'the stars of the offshoots, the stars of the branches,' as connected with *virga* (Cf. Jupiter Virgarius), says, 'Prof. Max Müller certainly has his reasons for deriving πλειάδες from πλέω, but . . . I think no objection could be raised as to a derivation from the form πλείων (comparative); and thus πλειάδες would mean, "those who are in a heap, those who are many."' After having noticed 'the πλειάδες, or priestesses of Zeus at Dodona,' he continues, 'In the woods around the temple of Dodona were numbers of pigeons, which were under the protection of Zeus. And when the original meaning of πλειάδες (the "heaped stars") was forgotten, the word πλειάς (pigeon), derived also from the same root, was applied to the priestesses who sang the "Hymns of the Spheres" and were called pigeons. When this etymology was forgotten, the circumstance that at the rise of the Seven stars on the eastern horizon the shipping season commenced, the phonetical coincidence of the root of Pleiades and the word πλεῖν (to navigate) led to the new explanation "the shipping stars." We may be almost certain that the name πλεῖαδες existed long before the Greeks thought of crossing the Mediterranean and the stormy Pontus Euxinus' (P. 148). All this is excellent and may be confirmed *aliter*. In the Old Testament the *Pleiades*, prominent as usual, are called *Kîmah*[1] (*Job*, ix. 9; xxviii. 31; Amos, v. 8), 'which is evidently nothing but the Assyrian *kimtu*, "family." The stem is *kamû*, "to tie," the family being called *kimtu* because its members are connected by one common tie' (Delitzsch, *The Heb. Lang. viewed in the light of As. Research*, 1883, pp. 69-70). *Kîmah* has also been connected, as Delitzsch notes, with the Ar. *kâm*, 'to make a heap,' *kawwam*, *kûm*, 'heap,' Heb. *khoumer*. But the root-idea is the same in both cases, the 'family' considered as close together, in a 'heap.' Delitzsch renders *Job*, xxxviii. 31: 'Dost thou bind the bands of the Pleiads?' 'Canst thou join the links of the Pleiades?' (Hahn).

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[1] Commonly understood as the Stars of 'Spring' (*Ver*). The reason for this is a very peculiar one. 'Eas stellas Vergilias nostri appellaverunt, quod *post ver* exoriuntur' (Hyginus, *Poet Astron.* xxi.).

As in the case of the *Bear*, so in that of the *Pleiades*, a peculiar and hitherto unexplained name has been preserved by Hêsychios :—Σάτιλλα· πλειὰς τὸ ἄστρον.

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[1] Messrs. Cheyne and Driver, in their excellent *Holy Bible, edited with various Renderings and Readings from the best Authorities*, 1876, lean to the opinion that *Kîmah* = *Sirius*, and *Aish* (properly rendered 'Arcturus' in the A. V.) = 'Alcyone, the brightest star among the Pleiades.' But this is not so, as Delitzsch and Hommel have shown. The Ar. phrase *Banât Na'sch* ('Daughters-of-the-Bier') applied to the Tail-stars of the *Bear*, was originally *Banât an Âs* ('The Daughter-of-*Aish*'). *Aish* (As. *isu*, 'fire,' Ak. *iz*) is 'The Fiery,' *par excellence*, *Arcturus* being the brightest northern star, and inferior only to *Sirius*, *Canopus*, and α *Centauri*.

The word *sa* has various meanings in Ak. such as 'star,' 'assembly,' etc., denoted by different cuneiforms; but it also means 'mound' (Sayce, *Syl.* No. 212), 'heap,' and we naturally select that meaning in the present case. The Ak. *ti*, *til*, signifies 'life,' and is reproduced in the Turko-Tataric root *ti-r*, 'to live,' etc., which reappears in such forms as the Yakute '*tilin*, lebendig werden; *tilli*, das Leben' (Vámbéry, *Etymologisches Wörterbuch der Turko-Tatarischen Sprachen*, 1878, p. 174). *La* = 'the emphatic prolongation,' and in *Sa-til-la* we may probably see an Ak. name of the *Pleiades*, meaning the 'Mound' or 'Heap-of-life,' the *Cluster* (of grapes, on coins, vide *sup.* p. 166), connected with the vernal equinox at the period when 'Candidus auratis aperit cum cornibus annum Taurus' (Vergil, *Geor.* i. 217-8). But an ordinary Ak. name for the Pleiad is *Te* ('the Foundation.' Vide *sup.* p. 57; *Tab.* No. 85-4-30, 15); and so in *W. A. I.* III. lxvi. Rev. 8A we read, 'the god, the constellation, the *Foundation*, the high enclosure.'

Aratos thus describes the Pleiads:—

> 'Near his left thigh[1] together sweep along
> The flock of *Clusterers.* Not a mighty space
> Holds all and they themselves are dim to see.
> And seven paths aloft men say they take,
> Yet six alone are viewed by mortal eyes.[2]
> These seven are called by name Alkyonê,
> Kelainô, Meropê, and Steropê,
> Têÿgetê, Elektrê, Maia queen.
> They thus together small and faint roll on,
> Yet notable at morn and eve through Zeus,'
> (*H. D.* 254-8, 261-5)

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[1] *I.e.*, that of *Perseus.*

[2] 'Quae septem dici, sex tamen esse solent' (Ovid, *Fasti*, iv. 169).

who bade them declare the seasons (*Sup.* p. 156). Sonidas defines the *Pleias* as τὸ ἑξάστερον. The Phoenician Atel-Atlas has no children, and therefore the myth of the seven *Clusterers* as daughters of Atlas ('Darkness') must be Hellenic. But *Alkyonê* (*η Tauri*), their chief, the 'Halcyon-Kingfisher,' has various Semitic links, as mated with Poseidôn, and connected with the bottomless pool through which the Argives said that Dionysos descended to bring up Semelê from Hadês (Paus. II. xxxvii. 5). The Classical authorities on the Halcyon-myth are given with great fullness by Prof. D'Arcy Thompson (*Glossary of Gk. Birds*, in voc. *Alkyôn*; *Bird and Beast*, 184-6). His conclusion is that the account is astronomical, and based on the positions of the Sun and the Pleiad at the winter solstice and the vernal equinox. Speaking of archaic Chinese astronomy Lacouperie says, '*Mao*, the Pleiades, . . . is written sun-open door . . . The Pleiades, the stars of the Open Door, announced the spring c. 2250 B.C. The astronomical book of *She-ki* (27, 12 v.) says that between the *Mao* and *Pyh*, the Hyades (where passes the ecliptic) was a (or the) route of heaven, *T'ien Kiai*' (*Western Origin*, 300-1). In the Euphratean sphere the ecliptic was divided into the 'three roads' of Anu, Bêl, and Êa (Vide *K.* 10,985; 11,395. For illustrations of the world-wide and ancient importance of the *Pleiades*, vide Haliburton, *New Materials for the Hist. of Man*; Blake, *Astronomical Myths*, 1877, cap. v.).

In Homer the *Dog* (of *Ôrîôn*, vide *sup.* p. 256), whether also a constellation or not, is certainly a single star, *Seirios*, in whose name Aryan and Semitic derivations coalesce. On the Aryan side he is the 'Scorcher,' as connected with *σειρός, σειρινός* etc. (Vide Wharton, *Etyma Gk.* p. 112). On the Semitic side he is the 'Glittering' 'the Burning-one,' 'Lamp,' etc., as connected with the Phoenician 'Sirion,' a name given by them to the snow-crowned Mount Hermon (*Deu.* iii. 9), and with the Ar. *sirâj; Sirius* and *Procyon* being, as Prof. Hommel has shown, 'the two Si'ray' ('Glitterers'). So Ideler, 'Die Araber gebrauchen *Schira* vom Sirius und Procyon zugleich, denen sie die gemeinschaftliche Benennung *Elschirajân*, die beiden Sirii, geben' (*Sternnamen*, p. 244). Seirios is *κακὸν σῆμα* (*Il.* xxii. 30), from a Greek point of view, on account of the weather which accompanied him (Vide *sup.* p. 157); nor, again, did the Dog in Hellas hold nearly as high a place in public regard as in Persia, or even amongst ourselves; 'the Greek notion of the dog being,' as Mr. Ruskin well observes, 'throughout confused between its serviceable fidelity, its watchfulness, its foul voracity, shamelessness, and deadly madness' (*Queen of the Air*, p. 29). But this view of the star is not Asiatic. Thus, to quote the cosmogony of Zarathustra, as related by Plutarch (*Peri Is.* xlvii.), doubtless on the excellent authority of Hermippos:— 'Oromâzês [Ahura-Mazda] adorned the heaven with stars, and one star before all he appointed as a guard and overseer, Seirios,' as being the brightest of the fixed stars. So in the *Avesta* Tistrya (*Sirius*) is 'the bright and glorious star, that gives happy dwelling' (*Tîr Yast*, i., ap. Darmesteter), and that heads the stars against 'the Glooms and Planets [which latter are considered to 'walk disorderly'] arranged by' Angra-Mainyu (Ahriman, the 'Dark,' or 'Hurtful'-spirit.

Zâd-sparam, iv. 3). Nor in Euphratean belief is there anything inauspicious connected with the *a Canis*, although there is much difference of opinion amongst Assyriologists as to what was the Euphratean name of the star. The myth of the heavenly hunter and his dogs is Euphratean. The solar Merôdakh, whose name 'may be merely a Semitic transformation of the Accadian Uru-dug, "benefactor of man"' (Sayce, *Rel. Anct. Babs.* p. 106), is provided with 'four divine dogs,' Ukkumu ('Despoiler'), Akkulu ('Devourer'), Iksada ('Capturer'), and Iltebu ('Carrier-away'); and this number is not accidental, but represents the flow of light from the Diurnal-sun to the four quarters. Similarly, in Aryan myth, the Vedic solar Yama is attended by two dogs who guard the way to the Under-world, and are four-eyed. Hence they become monsters in form and chthonian in character, and reappear as Kerberos, the Vedic Sarvari ('Darkness-of-night'). Such, however, is not the fate of the dogs of Marûdûku, who, as a variant phase of the solar photosphere, is really identical with the Shepherd Dumuzi-Tammuz, the hunter Adonai-Adônis. Tammuz, in his stellar character, was identical with Ôrîôn in his stellar phase (Vide Lenormant, *Les Origines*, i. 247, n. 1; Sayce, *Herod*, p. 403); and when he becomes constellational, the dogs pass through a corresponding avatar and become stellar.

In *W. A. I.* II. vi. 19, where the Ak. name is lost, we have the As. equivalent *Kalab Samsi* ('Dog-of-the-Sun'); and in *W. A. I.* II. xlix. 63 we find the *Kakkab Lik-Udu* ('Star *Dog-of-the-Sun*'). In *W. A I.* II. xlix. 43 the 'star' or 'constellation' of the *Dog* is said to betoken that 'forces are in the country.' *Canis Maj.* appears on a Euphratean boundary-stone in exactly the same attitude as in our modern star-maps (Vide R. B. Jr., *Z.* Fig. xviii. p. 26); and on other boundary-stones, *e.g.*, those figured in *W. A. I.* III. xlv., the stellar *Dog* is a prominent object. But, although in Homer the *Dog* = *Seirios*, *i.e.*, a particular star, yet considering the above instances, and also many other archaic or early examples of the constellational *Dog* or *Dogs*, I strongly incline to the opinion that the Homeric *Kuôn* is also a constellation, one of the τείρεα. The words signifying 'star' and 'constellation' are used so loosely and so interchangeably that the sense has to be gathered more from the context and general considerations than from the particular term employed; and at least in one other case that of the *Eagle*, alike in Akkadian and in Greek, which repeats the Akkadian terminology, we have the same name (Eagle) applied both to the constellation and to its principal star (Vide *sup.* p. 45). It is, moreover, a curious circumstance that just as the *Lesser Bear* is a reduplication of the *Bear*, not merely in the number of its principal stars, but also in their position; so is *Canis Maj.* an exactly similar reduplication of *Ŏrîôn*. *A* (*Sirius*) and β correspond in position with α and γ *Orionis*; δ, 22, and ε with the *Belt*-stars; and η and κ with κ and β *Orionis;* and it is almost certain that the seven stars of the *Dog* would be combined in idea, as were the seven stars of *Ŏrîôn*. *Prokyôn*, however, which is not referred to by Homer, is only a star, not a constellation, in Aratos; and, as a constellation, has but two stars in the Hipparcho-Ptolemy List. But the connexion betweeen this star and a dog is of very remote origin, for the eighth Euphratean Lunar Mansion was *kakkab Pallika* or *Palura* ('the Crossing-of-the-Water-Dog') or *Prokyôn* (Vide R. B. Jr., *E. S. R.* Part v. p. 19), who was supposed to have crossed the 'Great Stream,' as the Egyptians called the *Milky Way* (Vide Renouf. *The Eg. Book of the Dead*, Part iii. p. 139), which now lies between him and his brother *Canis Maj.*, and hence he appears as Προ-Κυών, 'Before' the *Sirius*-dog. And this connexion between *Prokyôn* and Water is the reason why names signifying 'watery-eyed,' 'weak-eyed,' 'blear-eyed,' were subsequently applied to the beautiful star, which, similarly, reappears in Greek myth as Maira ('the Sparkler')—not weak-eyed, 'canis ululans Mera' (Hyginus, *Fab.* cxxx.), the Little-dog which wept (= the Watery-eyed) for the death of its master Ikarios. A circular 'object of ivory,' figured by Schliemann (*Ilios*, p. 601), shows a Scorpion in the centre, a Dog (male) on one side, and a Dog (female) on the other; and this design is probably connected with the myth of the Ôriôn-slaying *Scorpion* (= Darkness. Vide *sup.* pp. 68, 147) and the Ôriôn-dogs Seirios and Maira, which latter epithet, like most of the names connected with the primitive constellations, appears in Homer (*Od.* xi. 326). Nor is the Homeric Maira unconnected with the stars, for she was said to be the daughter of Atlas, as Paus. (VIII. xlviii. 4) notes, when referring to this passage in the *Nekyia*.

The remaining constellation named by Homer is *Boôtês* (*Sup.* pp. 250, 263), which some have absurdly regarded as the star *Arcturus*. Lewis well observes, 'The [Homeric] epithet "tardily-setting," applied to Boötes, alludes to the fact that his disappearance, inasmuch as the constellation is in a perpendicular position, occupies some time; whereas, as Aratus signifies, his rising is rapid, being effected in a horizontal position' (*Astron. of the Ancients*, p. 59). And he quotes the imitative Latin poets to the same effect. Mr. W. W. Merry says, 'Boötes, called by Hesiod Ἀρκτοῦρος (Vide *sup.* p. 156), is said to "set slow," because at that time he occupies a line of greatest perpendicular length; at the time of rising he lies horizontally, and so comes into view more quickly' (*Homer*, *Odyssey*, i. 282). Aratos thus describes his setting, and the Schol. quotes the Homeric passage in illustration:—

> 'The *Bearward* now, part seen
> But more obscured, near the horizon lies.
> For with four Signs[1] the Ploughman, as he sinks,
> The deep receives; and he, when tired of day,
> At even lingers more than half the night,
> When with the sinking sun he likewise sets.
> These nights from his late setting bear their name'
> (*H. D.* 579-85).

And of his rising Aratos says:

> 'At once the *Ploughman* rises, by *Bear-watcher* (*Arktouros*) marked' (*Ibid.* 609).

We must next consider what stars formed this constellation. Hipparchos was the first Hellene to make a fairly complete Catalogue of the Stars; and this fine achievement continued to excite the admiration of posterity for ages. Even in the time of Pliny it seems to have been spoken of with bated breath; for the Roman compiler observes, 'Hipparchus, nunquam satis laudatus, . . . ausus, rem etiam

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[1] 'Chelis, Scorpio, Sagittario et Capricorno coöccidit' (Micyllus, in loc.).

Deo improbam, annumerare posteris stellas' (*Hist. Nat.* ii. 26). But it is now clear that when he compiled his Catalogue, he had much important foreign literary material to work upon (Vide *sup.* p. 118). Had his writings been preserved, we might have known more about 'Nazaratos the Assyrian,' the instructor of Pythagoras, a sage who 'held converse with the chief of the Chaldaeans' (Clem. Alex. *Strom.* i. 15); about the Babylonian mathematicians above mentioned (Vide *sup.* p. 118); and doubtless concerning many others, such as Bêrôsos, who passed on the archaic lore of the Euphratês Valley to the active Greek mind. Now the researches of Delambre and others have shown that the Star-list of Hipparchos is, as noticed (*Sup.* pp. 20-24), in the main, preserved in the seventh and eighth Books of the *Megalê Syntaxis tês Astronomias* of Ptolemy, commonly called, by its Arabic title, the *Almagest*, (*i.e.*, 'The Greatest'). Here, then, we turn in the first instance. The account of Ptolemy is practically the account of Hipparchos, who will be found to be in exact accordance with the description of Aratos, who is merely the versifier of Eudoxos; and with the prose account of the latter the brief Homeric description, so far as it goes, perfectly agrees.

The entire evidence, therefore, points to the conclusion that the Homeric *Boôtês* consisted of those bright stars which are assigned to it in the Hipparcho-Ptolemy List (Vide *sup.* p. 31).

Aratos describes the constellation thus:—

> 'Behind the *Twister* (*Helikê, Ursa Maj.*) moves, as if he drove,
> The *Bearward* (*Arktophylax*), whom mankind the *Ploughman* call,

> Because he seems to touch the wainlike *Bear.*
> The whole is well in sight; but, 'neath his waist,[1]
> The star *Bear-watcher* brighter than the rest' (*H. D.* 91-5).

Arcturus, it will be observed, is not part of the constellation. The rather peculiar word κολλορόβος ('Shepherd's Crook') = καλαῦροψ.

Let us next reconstruct the constellation-figure by the aid of the Star-list, and the process, which of course can be applied to any other of the primitive constellations of the Greeks, will serve to illustrate how a pre-existing idea was applied to particular stars. For none of the numerous names by which the constellation has been known, were arrived at merely by independent observation of the stars which it contains. They are all connected with prior and external ideas, to which the natural configuration of these particular stars is made to accommodate itself. A reconstruction of the figure of *Boôtês* shows it as represented (Vide Star-map).

Now I do not say that in the time of Homer all the stars in this figure were generally considered to form part of *Boôtês;* nor, again, do I deny this. But I say that the principal stars in it undoubtedly were included in that constellation. All agree that at least seven stars (α, β, γ, δ, ε, ζ, κ *Orionis*) were included in the Homeric constellation *Ôrîôn;* and similarly κ (perhaps the κ-group), γ, β, δ, ε, ζ and η would certainly help to make up the *Boôtês*-figure. And here, again, we should have a group of seven stars, as in the cases of the *Wain*, the *Pleiad*, and *Ôrîôn*. What a light this throws upon the rest of the Homeric τείρεα. Here fully revealed to us is one of the Homeric Signs with which the heaven is crowned, crowned as in turn they culminate. But it is evident that other constellations, although they chance to be unnamed, had also been formed and were equally well known to the poet and to the men of his time. If these seven stars of *Boôtês*, lying widely apart, as they do, had ere that period been combined in a figure whose tardy setting was familiar, then it is certain that the human mind must also have directed its efforts in star-grouping elsewhere; and would not merely confine itself to *Ôrîôn*, *Pleiad*, *Hyad*, and *Bear*, but would turn its attention to numerous other stars, many of which by their position, shape, etc., forcibly suggest formation into asterisms and constellations. Believing that any one who has followed the argument so far, even if he may hitherto have doubted somewhat, will now agree in its conclusion, I pass on to notice some of the names of this constellation. And here it is to be remembered, that although the Arabs have borrowed most of their star-names from the Greeks, yet, as Prof. Hommel (who has made this branch of the subject specially his own) has shown, some Arabian names, as might have well been expected, considering that Arabia adjoins the Euphratês Valley, and that Arabian kings once reigned in Babylôn, were derived from the Akkado-Babylonians at a remote period.

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[1] Cf. Vitruvius (ix.), 'Stella media genuorum custodis Arcti.'

Boôtês, considered as connected with *βοάω*, has given rise to the appellations *Clamans*, *Clamator*, *Vociferator*, and the Ar. *Al-'Auwâ* ('The Shouter'). *Boôtês*, the 'Ploughman,' reappears as the Lat. *Bubulcus* and *Septentrio*, master of the *Septentriones* ('the Seven-plough-oxen'), = the *Wain*-stars. The names *Arkas* ('The Bright') and

Arktopyhylax have been referred to; and in Greek myth *Boôtês* was also called Ikarios, who, in the Attic legend, is a friend of Dionysos and sire of Êrigonê (Vide *sup.* p. 154). Ikarios, having introduced wine into the country, is killed by some shepherds who fancy they are poisoned. Êrigonê, conducted to his grave by his faithful dog Maira (Vide *sup.* p. 279), hangs herself; and the three are translated to the stars as *Boôtês*, *Parthenos*, and *Prokyôn*. Here, as ever, the connexion of the constellation-legend is purely Semitic. Ikaros or Ikarios is identical with the Megarian hero Kar the Karian, who is said to have built the Akropolis of Megara, where were temples of the Semitic divinities Dionysos and Aphroditê and a statue of Asklêpios-Eschmûn (Paus. I. xl. 4). The underlying historical facts are (1) That the Karians were constantly employed by the Phoenicians as mercenaries; and (2) That the Semitic introduction of wine and of a wine-god-cult, accompanied by violent orgies, created no small disturbance in various localities (Cf. *Il.* vi. 130-40; Euripidês, *Bakchai*). Êrigonê, like Aphroditê, Britomartis-Diktynna, Eurynomê, and Andromeda, is connected with nets, chains, cords, etc.

Boôtês, as the 'Herdsman,' reappears in the Ar. *Al-bakkâr*, afterwards corrupted to *Al-nekkar* or *Nikkar*, and called *Beguius* in the famous *Alphonsine Tables*, compiled under the direction of Alphonso X. of Castile, surnamed 'the Wise,' cir. 1252 (*Sup.* p. 20).

The word καλαῦροψ has given rise to various corrupt forms, such as Ar. *Al-kalurops*, *Inkalurus* (*Alp. Tab.*), etc. Many other names of the constellation are merely derived descriptive appellations, such as *Venator Ursae*, etc., which require no special notice. They can be found in Dupuis (Vide also Smyth, *Cycle of Celest. Objects*, 1844, Vol. ii.). But, besides these, there are certain other names of this Sign which deserve careful consideration. *Boôtês* is not merely represented as a 'Bearward,' a 'Herdsman,' and a 'Shouter'; he is also armed, *Hastatus*, *Lanceator*, (Ar.) *Al-Râmih*. And his names and those of *Arktouros* are frequently used interchangeably; as if the great star were a compression of the constellation, and the constellation an expansion of the star. Thus Souidas says, Ἀρκτοῦρος δὲ λέγεται καὶ αὐτὸς ὅλος Βοώτης· ἰδίως δὲ και ὁ ὑπὸ τὴν ζώνην ἀυτοῦ ἀστήρ (In voc. *Arktos*): and *Boôtês* is also called *Arcturus Minor*. *Arktouros*, the star, is, like *Stachys-Spica* (*a Virginis*), called *Al-Simâk* ('the Prop'). The great star is a support of heaven, and of kosmic order generally. We may compare such concepts as Atlas, who 'upholds the tall pillars which keep earth and sky asunder' (*Od.* i. 53-4); Mithra, 'who upholds the columns of the lofty house' (*Mihir Yast*, viii.), 'the pillars of the earth' (1 *Sam.* ii. 8); and the Eg. god Shû, uplifted of the sky. And this is why *Spica* is also called Μικρὸς Κονταράτος ('The Little [as opposed to *Arktouros*] Lance-holder'). *Arktouros* is termed (Ar.) *Simâk-al-Râmih* ('The Prop-of-the-Lance-holder'); and, conversely, *Boôtês* is (Ar.) *Hâris-al-Simâk* ('the Guardian-of-the-Prop'), corrupted into *Haromach*, *Arramech*, etc.; whilst *Simâk* becomes *Samech*, and *Al-Simâk*, *Azimech*, etc. *Boôtês*, moreover, is not merely an armed warrior, but also a 'Shepherd'; and so is called *Pastor*, and is, moreover, described as (Ar.) *Hâris-al-Samâ* ('The Guardian-of-heaven'), not merely a *Bearward*.

This lance-bearing warrior, *Arktouros-Boôtês*, who bears the proud title of 'Guardian-of-heaven,' appropriately introduces another and a very curious fact, viz., that *Boôtês* is called *Ôrîôn*, and *Ôrîôn*, *Boôtês*. Dupuis, whose theories are as worthless as his collection of facts is valuable, says, 'Théon et Hesychius donnent aussi le nom d'*Orion* au Bootès ou à l'Arcture' (*Tableau Historique*, pp. 109-10). Hêsychios gives Βοώτες· *ὁ 'Ωρίων. ὁι δὲ Φύλαξ*, *i.e.*, *Arktophylax*; whence it appears that *Ôrîôn* was called *Boôtês*. He also describes *'Ωρίων* as 'a constellation so-called'; and at the end of his *Lexikon* there is an interesting extract, 'magna horum pars sumta est ex Basilii fragmento in Catena in Iob. VII.' This describes *Ôrîôn* as 'a constellation (*σύστημα*, 'organized-whole') of twenty-four stars,' *ὅν τινες ὀνομάζουσι* Βοώτην . . . *καὶ τοῦ* 'Αρκτούρου *μέμνηται ἡ γραφή, ὅν μεταξὺ τών μηρῶν τοῦ 'Ωρίωνος ὁρῶμεν κείμενον ἀστέρα ὑπόκιῤῥον.* This reference to *Arktouros* is mainly a quotation from Ptolemy's Star-list (*Sup.* p. 31). *Boôtês*, therefore, was called *Ôrîôn*; and as there were many pairs amongst the Signs, *e.g.*, two *Bears*, two *Serpents*, two *Dogs*, two *Centaurs*, two constellations of *Fish*, so also were there two *Ôrîôns*, Warriors, and Shepherds. This pair held, so to speak, the North and the South respectively; and Smyth quotes from Claudian, last of the Latin Classic poets :—

> 'Boötes with his wain the north unfolds;
> The southern gate Orion holds.'

I have given in detail these facts about *Boôtês* and his connexion with *Ôrîôn*, because I think they may tend to clear up one of the most difficult points connected with stellar identification in the Euphratean Sphere. We know that the stars were figuratively regarded by the Sumero-Akkadai as 'a heavenly flock,' a simile which is even found as late as the so-called *Chaldaean Oracles.* Τῶν Βαβυλωνίων ὁι δοκιμώτατοι ἀγέλας κυριῶς καλοῦσι τὰς ἀστρικὰς σφαίρας (*Oracle,* No. cxlii.). Of these 'herds' the seven planets were the *Lubati* ('Old sheep'), and the whole of the stars had certain stellar shepherds. The Ak. *sib*, *siba*, = As. *ri'u*, 'shepherd,' and *bêlu*, 'lord,' just as the Homeric king is the 'shepherd' of his people; and no constellation is more frequently mentioned in the Inscriptions than *Sibzianna*, As. *Ri'ubutsamê* ('Shepherd-of-the-life-of-heaven' or 'Shepherd, Spirit-of-heaven'), a lord and guardian, called also *Ri'u kînu sa samî* ('the true Shepherd-of-heaven'). The researches of Messrs. Sayce and Bosanquet (*Monthly Notices of the Royal Astron. Soc.* Vol. XL. Jan. 1880, pp. 119 *et seq.*), and their examination of Tab. *K.* 8538, have made it practically certain that *Sibzianna* = *Arktouros*, and at times *Boôtês*, probably including *Arktouros;* and elsewhere Prof. Sayce observes, 'The star "of the shepherd of the heavenly herds" . . . is' [by a *lapsus calami* he has written 'Regulus,' but it will be observed that he meant 'Arcturus'] Arcturus, 'and in his Greek name of Boôtês, "the herdsman," we may see a lingering echo of the Accadian story which made its way through the hands of the Phoenicians to Greece' (*Rel. Anct. Babs.* p. 49). But, although this is undoubtedly true, yet there are other passages which speak of *Sibzianna*, or rather of a *Sibzianna*, as situate in the neighbourhood of *Ôrîôn* and the ecliptic (Vide *inf.* p. 288); and doubtless it is these Tablets which Prof. Hommel has in mind when he writes, 'Der dritte lumashi-stern ist der *Sib-zi-anna* oder der "treue Hüter des Himmel." Entweder ist dadurch γ der Zwillinge gemeint, da nach Epping die "Zwillinge der Gegend des Sib-zi-anna" bei γ gemin. standen (also wohl μ und η der Zwillinge), oder aber Beteigeuze [*Betelgeuse*, = *Ibt-al-Jauzâ* ('Armpit-of-the-Giant'), *a Orionis*], der rote Stern erster Grösse im Orion' (*Die Astronomie der alten Chaldäer*, iii. 10). Thus, the *Te Tablet* (No. 85-4-30, 15) gives *Sibzianna* and *Mastabbagalgal* ('the Great Twins') = *Castor* and *Pollux*, as the leading stars of the month Sivan (May-June). The *Sibzianna* in question would therefore seem to be in the neighbourhood of the *Twins*. Another Tablet, *K*. 1551, l. 12 (Vide Bezold, *Cat*. i. 307), reads :—*Kakkab Sak-vi-sa* (which here = *Jupiter*) *a-na libbi kakkab Sib-zi-an-na i-ru-ub* ('The planet *Sakvisa* to the midst of the constellation *Shepherd-of-the-life-of-heaven* enters'). This *Sibzianna* cannot have been *Arcturus*, or any part of *Boôtês*. Without further investigating the matter at this stage of the enquiry it will, I think, be clear that the double Hellenic *Boôtês-Ôrîôn* is a reduplication of a double Euphratean *Sibzianna*. *Ôrîôn*, as noticed (*Sup*. p. 92) was identical with Dumu-zi or Duwu-zi ('The Son-of-life'), a name contracted into (As.-Bab.) Duzu, and which with the western Semites became Tammuz (Cf. Ez. viii. 14) ; and Dumu-zi, originally a Sun-god and husband of Istar, and thus, like Ôrîôn, reduplicated in a constellation, is, *par excellence*, 'shepherd and lord' (*W.A.I.* IV. xxvii. No. 1, l. 1). Prof. Jensen's identification of *Sibzianna* with *Regulus* is incorrect.

As the *Pleiades* were connected by play of words with 'Doves,' so were the *Hyades*, the *Pluviae* of the Latin poets, with 'Pigs'; and commonly called in Latin *Suculae* ('Piglings'), but this is a mere popular etymology. In the *Te Tablet* the star-group (Sum.-Ak.) *Dimmenna*, (As.-Bab.) *Temennu* ('The Foundation'), a word conventionally abbreviated to *Te* in Tablets of the Greek period, and the star-group (Sum.-Ak.) *Gutanna*, (As.-Bab.) *Alpu-samê* ('Bull-of-heaven'), representing respectively the Pleiads and Hyads, are the protagonistic stars of the second month Airu (Iyyar). The Pleiad was thus the 'Foundation' (= starting point) of the original solar year (Vide *sup.* p. 57).

Although Hêraklês does not, like Ôriôn, obviously appear in Homer in the two phases of Sun-god and constellation-figure, yet the presentation of him all but reaches this double form. In the *Iliad* he is the toiling hero who captures Troia (v. 638-42), wars in Hellas (xi. 690-1), is persecuted by Hêra (xv. 25-30), cannot escape the death-goddess (xviii. 117), and, like Bêl-Merôdach, Perseus, and other solar heroes, fights with a Sea-monster (xx. 145-8). In the *Odyssey* his appearance to Odysseus when the latter visits the Under-world, is described in a passage of great interest and importance (*Od.* xi. 601-24). The hero sees the phantom of the mighty Hêraklês, not the god himself, for he is with the immortals, wedded to Hêbê [= is made deathless]. The dead fly about him like birds in fear, and he, 'like black Night,' has bow uncased and shaft on string, 'fiercely glancing around,' like one about to shoot. He wears a 'dire-gleaming' belt of gold, whereon are wrought 'bears and wild boars and lions with flashing eyes, and battles and slaughters.'

He recognizes Odysseus, and says what 'hard adventures' he had on earth; and that his hardest task was to lift the Dog (Kerberos) from Hadês. The phrase ἐρεμνῇ νυκτὶ ἐοικὼς means that his aspect was terrible, not that it was dark; for his eyes flashed, his belt gleamed, etc. Thus the expression νυκτὶ ἐοικώς is used of Apollôn himself (*Il.* i. 47) when enraged.

It is impossible for anyone unacquainted with primitive Euphratean belief and ideas to understand thoroughly the scene described in *Od.* xi. The realm of Mul-lil included not only the Under-world in all its divisions, but the Upper-world also even to the stars was within his sway during the hours of darkness, when ghosts leave their prison-house, and day-avoiding dreams and phantoms combine to terrify mankind. And this curious feature underlies the Homeric description of the Nekyia. In a special monograph (*K.*; vide also *Sem.* III. xxi.) I have gone fully into the matter in its varied details, and to that work I would refer the reader, merely quoting the following passage from it:—'Two distinct, yet not inharmonious, elements enter into the entire presentation, and point to its basis as rooted in a remote antiquity; we have before us the Under-world *and* Night. The very word Erebos (Evening-gloom) stands between them as a connecting link. Aryan and Akkadian had an equal, a remarkable horror of darkness; and here as in the Vedic and Akkadian Hymns, we see glimpses of a period when the primeval chaos, the recurring night, and the gloom and confusion of the infernal abyss, were closely linked together in idea' (Pp. 130-1). I have shown that Odysseus did not quit his station by the trench; and, after noticing Mr. Gladstone's and Dr. Hayman's account of the description, I add, 'We may take it, therefore, as agreed upon that when standing by the trench the hero had not lost sight of the night-sky above, and had obtained a vision of a portion of the Under-world beneath' (P. 123). It is under such circumstances that he sees the reduplication of Hêraklês, and this form, although not so to the poet's consciousness, is, in truth, the constellation-figure of Hêraklês the Bowman (*Sup.* pp. 34, 187, 234), Melqârth of Thasos (*Sup.* pp. 152, 194), about to let fly an arrow amongst the startled Bird-souls; even as his prototype Merôdach had fought against the Demon-birds (Vide *sup.* p. 234).

The instance of Kastôr and Polydeukês, who were identified by the Greeks with the *Twins*, and particularly with the two stars *α* and *β* *Gem.*, is also one of much interest in an archaic connexion. From the passage about them in the *Iliad* (iii. 243-4) it might have been supposed that they were merely two dead mortals, 'but them now the life-giving earth held in Lakedaimôn.' In the *Odyssey* (xi. 301-4) we read, 'Both these the life-giving earth holds alive; they having even in the nether world honour from Zeus. Now they are alive alternately, and now again they are dead,' *i.e.*, when one is alive, the other is dead. 'And honours like to gods they have received.' Now I defy any ordinary interpreter either of Homer or of myths generally to explain this precise and very singular statement. It is just one of those sayings so hard to understand, and yet so clear and decided in its terms, in which the real student of mythology recognizes an archaic truth, the primary meaning of which has long been forgotten, whilst the formula descends from age to age. The original 'Great Twins' (Ak. *Mastabbagalgal*, *sup.* p. 59) or 'Great Twin Brethren,' are the Sun and Moon, who live alternately. As one is born, the other dies; as one rises, the other sets. And this pair is reduplicated in the zodiacal *Twins*, and in the two great twin stars of that constellation. Further, *Gemini* has always been called a 'diurnal' Sign, the reason of which is merely that the two original Twins are only seen together by day. On Euphratean cylinders we find the *Twins* portrayed as two human figures, one above the other, either head to head or feet to feet, so that one of them is standing on his head (Vide Lajard, *Culte de Mithra*, Pl. xxvi. 1; xxvii. 5; liv. A. 2, 6; R. B. Jr., *Z.* p. 7). When one is up, the other is down; yet are they both still alive, although constantly passing beneath the 'life-giving earth.' It is not merely in general tone and concept, but also in numerous reminiscences such as these, that we notice the intense Euphrateanism, if I may so say, of *Od.* xi.

The observation given to the stars by early mariners is well illustrated by the line, 'When it was in the third part of the night and the stars had crossed the zenith' (*Od.* xii. 312). Here the stars which cross the zenith, called in Akkadian 'the divine place' (*anva*, As.-Bab. *nalbar-samê*), are the constellations that culminate in turn, and are carefully observed by the sailor. We are now in a position to sum up the results of an examination of the references in Homer to stars and constellations. We find that he was familiar with the legendary histories of all the personages who had been translated to the skies. Thus, as he calls Perseus 'the most famous of men,' it is clear that those associated with him in myth must also have been almost universally known throughout Hellas. We find in the Poems all the objects which were used as constellation-figures, with the exception of three creatures known to everyone; and thus *Iliad* and *Odyssey* are in exact accordance with the coins. Both coins and poems alike present us with the forms used for the Signs of heaven. But, beyond this, we see in Homer at least four constellations distinctly specified; and of these, two, *Boôtês* and the *Wain*, obviously consisted then of the same principal stars as they do now. And, further, when we come to understand what this necessarily implies, to examine the history and character of these constellations, and to observe the prominent mistakes of antiquity and of modern times made with respect to them, we are irresistibly compelled to a conclusion exactly similar to that arrived at by an examination of Greek literature from Eudoxos to Hêsiod, and from a consideration of the earlier coin-types, namely, that the Homeric age, like the later times treated of in preceding chapters, was familiar with all or nearly all of the primitive constellations of the Greeks. Lastly, when the question is asked, Whence originally came the concepts of the *Wain*, *Boôtês*, *Ôrîôn*, and his *Dog*, not to mention numerous other points and features, the answer must be,—From the primitive civilization of the Euphratês Valley.

CHAPTER VII.

Constellation-subjects appearing in the early unnumismatic Art of the Aigaion seaboard and of Asia Minor.

As constellation-subjects appear largely amongst the earlier coin-types, so also are they to be met with, to a considerable extent, in the primitive Art of the Aigaion seaboard and of Asia Minor. To avoid any possible misapprehension, I refer the reader to what I have said respecting the constellations when considered in connexion with the coin-types (*Sup.* p. 161). I do not assert, in the abstract, that a lion at Mykênai has any necessary connexion with *Leo*, or a bull at Tiryns with *Taurus*. I merely call attention, in a general way, to the fact that various constellation-subjects, whether in their constellational or pre-constellational character, or, again, accidentally, were familiar to the Art of the time and place of which I speak. That the artists of a country where lions existed should delineate lions, is almost a matter of course; but the evidence of the records of human thought convinces us that it was almost equally certain that the lion should be regarded, first in idea and subsequently in concrete Art, in a symbolical manner. And this observation, as of course, applies to other creatures. Mr. A. Lang once wrote in *The Academy*, that various scholars 'are all united against the dull person who thinks that, when mythopoeic man spoke of a Hare, he probably meant a Hare *sans phrase*.' I replied in the same Journal, 'In this case, how was man mythopoeic? The animal, too, must have strangely changed its habits from the days when it was wont to dance when the Lion died, spit on the Bear's cubs, laugh at the dying Eagle, guard the cave of the wild beasts, and defend the Lambs (Stars) from the Wolf (Darkness).' To this rejoinder Mr. Lang made no reply; and here we touch one of the principles involved in an examination like the present, viz., that if we find in ancient art or story, *e.g.*, animals, represented under circumstances, or as acting in ways, entirely contrary to their actual natural habits, we may feel a reasonable certainty that symbolism is at work. Thus, in the mythic stories above mentioned, it is remarkable that even the dullest person can regard them as spoken of the 'Hare *sans phrase*.' They are all simple enough when referred to the Hare-moon, natural enemy of the Lion-sun (Vide *sup.* p. 97). As with the coin-types, it is simply a matter of evidence in each case, whether this or that constellation-subject is portrayed with reference to natural phenomena, stellar or otherwise.

At Troia the following constellation-subjects were found by Schliemann:—The Altar, Flaming-altar, Tripod; heads of the Bull, Ox, and Horse; the Cup or Bowl (of the *kantharos*-type); the Cow, Ox, Dog, Horse, Ibex-goat, Lion, Hare, Eagle, Swan, Serpent, Fish, and Scorpion; also the female figure of the Istar-*Virgo* type. One instance of the Hare has been already noticed (*Sup.* p. 97). On two of the Whorls (*Troy*, Pl. xxvii. No. 367; xxviii. No. 377) four Hares (= the four quarters of the Moon) are depicted around the central hole. On one of 'the terra-cotta balls' are 'twelve stars, one of which has a dot in the centre [A Euphratean type.]. The twelve little stars may possibly denote the twelve signs of the zodiac' (*Ibid.* p. 168). Prof. Sayce remarks :—'We learn from the Trojan cylinders that objects of early Babylonian origin were known to the primitive inhabitants of Hissarlik, and several of the designs on the Whorls are obviously imitations of designs on Babylonian cylinders, among which small round holes denoting the stars and planets are especially plentiful' (*Ilios*, p. 703). The sun with curved rays appears on the Whorls as in the Kretan Pictographs. A vase-cover of terra-cotta shows a creature which 'Professor Virchow thinks the primitive Trojan artist intended to represent a tortoise' (*Ibid.* p. 413), a variant of the Crab (Vide *sup.* p. 207). 'Both land and water tortoises are very abundant' in the Troad (*Ibid.* p. 114). The above list does not pretend to be exhaustive, and very likely various other constellation-subjects were found at Troia; but nearly all the more prominent animal-Signs and the greater part of the zodiacal Signs are represented in it. As the reader of *Ilios* will observe, there was a very distinct connexion between Troia and Babylônia.

At Tiryns the following constellation-subjects (perhaps amongst others) were found by Schliemann :—Bird, Bowl, Bull, Charioteer, Dog, Horse, Ram's-head and Swan ; and also in combination Horse and Fish, and Female holding Ear-of-corn. In the former case the Fish, in two variant instances, is placed under the belly of the Horse between the fore and hind legs (Vide Schliemann, *Tiryns*, Pl. xviii.). The design, thus not representing a natural fact, is probably typical, and reminds us of the celestial combination of *Pêgasos* and the *Northern Fish* (Vide *sup.* p. 241). The female figure holding the *Ear-of-corn* (Schliemann, *Tiryns*, Pl. xvii.) is exactly like the *Virgo* and *Spica*, as appearing on Euphratean cylinders and otherwise in the Art of Western Asia (Vide R. B. Jr., *V.* Figs. vi. vii. ix. x.). In a letter to *The Academy*, dated November 23, 1895, I showed in detail that the gigantic Bull of the Tirynthian wall-painting (*Tiryns*, Pl. xiii.), like the zodiacal *Taurus*, represented the *Bos primigenius*, Heb. *Rêm*, As. *Rîmu*, portrayed conventionally as showing only one horn (= the Unicorn). Speaking of the tail of the Bull I said, 'Here, again, as constantly in archaic art, the treatment is conventional, types, scenes, and delineation being often repeated from generation to generation. The tail of a bull at speed is almost invariably stretched straight out, and of course is not divided towards the end into two equal parts. But this peculiar curl over the back [which appears in the instance of the Tirynthian Bull,] is familiar to the symbolical art of Western Asia. Thus we find: Winged Unicorn-bull at speed in a position similar to that of the Tirynthian Bull, with tail curled in exactly the same manner (Lajard, *Culte de Mithra*, Pl. xliv. No. 18). Same type: Bull with curled tail, and one horn and one ear shown (*Ibid.* No. 21). Bull, showing horn and ear as before, with tail curled over back, and artificially divided towards the end into two equal parts (*Ibid.* Pl. lxviii. No. 2), as in the case of the Tirynthian Bull.' In this latter instance the Crescent-moon appears over the back of the Bull, as the key to the symbolism.

At Mykênai the following constellation-subjects (perhaps amongst others) were found by Schliemann:—

Bowl (of the *kantharos*-type), Charioteer, Cow, Cow-heads; Doves, with female; gold shrine of Aphrodîtê, with Doves; Eagle, Ear-of-corn, Hêraklês and Lion, Horse, Sea-horse, Lion, Serpent, drakontic Serpent, and Swan. The Gryphon also appears.

M. Svoronos (*Sur la Signification des Types Monétaires des Anciens*, Pl. xvi.) gives a fine kneeling figure of Harekhal-*Hêraklês* of Thasos, which exactly corresponds with the coin-types (Vide *sup.* p. 291). I have noticed the *Centaur* on the Coffer of Kypselos (*Sup.* p. 213); and it is needless to refer to the Centaurs in later Art.

Amongst the highly interesting and important Kretan Pictographs (Vide Arthur J. Evans, *Cretan Pictographs and Pre-Phoenician Script*, 1895) are found the following constellation-subjects:—

Altar, Arrow, Bowl, Bull or Ox, Bull-head, Bucranium, Dog, Dove, Eagle *volant*, Fish (Tunny, vide *sup.* p. 87), Goat, Goat-head, Hêraklês in Lion-skin, Lyre, Ram's-head, Scorpion, Sea-horse, Ship, and Tortoise. Another type is the Tree, which seems closely akin to the Ear-of-corn type. One Stone (P. 69) bears what appears to be a Sea-monster, a type we should expect to find in Krêtê (Vide *sup.* p. 188). Another bears three Fishes, which recall the zodiacal Pair and the *Great Fish.* It is quite possible that other constellation-subjects appear amongst the objects portrayed, many of which are at present unrecognizable. It is premature at present to enter into any detailed consideration of this

Eteokretan Art, which is connected alike with that of Mykênai, Asia Minor and Syria, and Egypt. Nor can we yet venture to dogmatise or even to advance much upon the symbology. It is easy to speak of 'animal worship in the Mycenaean age'; but when we meet 'with a figure having the limbs and body of a man but apparently either lion-headed (?) or *coifed in a lion's scalp*' (P. 69), we may safely accept this as a Hêraklês, instead of troubling ourselves anent lion-headed 'Mycenaean daemons,' and supposing that 'we may trace perhaps a reference to an originally totemic lion of a tribe or family' (P. 70.) We must also, I think, look with distrust upon that method of interpretation which makes 'a personal application' of 'symbolic characters'; *e.g.*, 'Fig. 24, with the pig and door, would have belonged to some one who owned herds of swine' (P. 33.) The design shows an animal which I take to be a Wild-boar; it has a crested-back, like the Wild-boar of the Lykian coins, and is standing before some doubtful object, which is certainly not a door. 'The Fish at the head of Fig. 33,' continues Mr. Evans, 'may indicate a fisherman.' Certainly it *may*, just as the single human leg of Fig. 25 may (or may not) indicate that the owner was a one-legged man. I am not at present contending in favour of an occult symbolism; but, at the same time, these designs, like numbers of others in different branches of archaic Art, will probably be found to contain this ingredient. Fig. 64, a three-sided stone, shows on its respective sides an Ostrich, a Ram's head and a Scorpion. If we hold that the artist engraved these designs merely from a whim and without any special reason or meaning, we simply repeat the facts of the case whilst pretending to explain them. Nor, again, can we suppose the owner possessed herds, flocks or swarms of these three kinds of creatures. If we are inclined to think that, having seen an ostrich for the first time, he was so struck with it that he engraved its portrait on his stone, this will not accord with the other two representations. Mr. Evans notes that the Scorpion was 'a favourite symbol on early Asianic and Syrian seal-stones' (P. 72); and here, it will probably be agreed that we detect Euphratean influence. If the Scorpion were symbolical, so, we may argue, were the other two designs; and the whole combination might well mean, on Euphratean lines, the Forces-of-nature (Vide the familiar Cylinder-group of a divinity holding two Ostriches by their necks) working in harmonious order through Day (= the solar Ram) and Night (= Darkness, the Scorpion). That such is the meaning I do not assert; nor, again, if such were the original signification, need it have been known to a Kretan copyist. Prof. Sayce, in a review of Mr. Evans' book (*Academy*, Aug. 29, 1896), reminds us that, as Sargon of Akkad, B.C. 3800, extended his empire 'even into Cyprus,' there was plenty of opportunity for the exercise of Euphratean influence in the direction of Krêtê in archaic times, and that *e.g.*, the Ox-head of the Kypriote cylinders is exactly reproduced among the Kretan pictographs. Mr. Evans well notes that 'certain signs,' which he mentions, 'clearly point to a fundamental relationship between the Hittite and Cretan systems. The double axe moreover is characteristically Asianic' (P. 47). This is the special weapon of Dionysos Pelekys (Vide *sup.* pp. 182, 199), and appears alike in

Hittite inscriptions, Kypriote cylinders, Mykenaian rings and Kretan gems. The Asianic Zeus Labrandeus or Labraundos is merely the god armed with the Lydian λάβρυς (= πέλεκυς. Vide Plout. *Hellên.* p. 302 A.).

Without, therefore, here entering further into detail, argument and speculation, suffice it for the present to notice that the archaic art of the Troad, of Argolis, and of Krêtê was essentially compound in character. It was largely but indirectly influenced by the art and religion of the Euphratês Valley and by the art of Egypt. It was powerfully and directly influenced by various nations of Asia Minor, including the Hittites, and by Phoenicia, including Phelesheth (Philistia). That the art of Mykênai or of Krêtê was either altogether European or altogether Asiatic is improbable in the highest degree. Alike at Troia, Mykênai, Tiryns, and in Krêtê constellation-subjects appear in considerable numbers. Some of them are almost necessarily introduced in scenes depicting actual life, but not so others; and the general result, as in the case of the coins, is the strong presumption that these figures, or most of them, were familiar, and were employed in a sacred or semi-sacred connexion.

Constellation-subjects on Gems. Constellation-subjects on gems are very plentiful, but of comparatively small interest in this connexion, inasmuch as most of them are late work, with which we are not here concerned. M. M. Imhoof-Blumer and Otto Keller (*Tier- und Pflanzenbilder*) have given an admirable collection, including many designs of great interest; but it is generally quite impossible to determine the date in any particular case, in which respect gems contrast most unfavourably with coins. It is true that late work at times reproduces an archaic design, in which case it is of course deserving of careful study. The Altar, Bear, Bowl, Bull, Centaur with *thyrsos* (as described by Ptolemy, vide *sup.* p. 109), Charioteer, Crab, Crow, Dog, Dolphin, Dove, Eagle, Eagle-head, Ear-of-corn, Fish, Goat, Grape-cluster, Hêraklês with Lion, with Hydra, with Stymphalian Birds; Horse, Demi-horse, Sea-horse, Lyre, Ram, Ram's-head, Scorpion, Serpent, Swan, and Tripod, all appear on various gems, the great majority of which require no special notice.

One gem in the above-named work (Taf. xv. 18) shows the following singular combination of symbols: Two large Scorpions upright, between their tails a Bear's head, l. of the one an eight-rayed Star and Crescent-moon, r. of the other a Bird, thought to be a Dove, the whole encircled by a Serpent, tail in mouth. Whatever may have been the signification attached by the engraver to this design, it certainly presents a number of archaïc ideas. The twin Scorpions of Darkness, eastern and western (Vide *sup.* pp. 67, 217); the Ocean-serpent (Vide *sup.* p. 104) and Time-serpent; the Bear's head (= *Ursa Maj.?*) and the Dove (= the Pleiad?), all carry us back into very early times; and if, as is possible, the eight-rayed Star represents, not *Sol*, but *Venus*, we should have here a picture of the nocturnal heaven. I may add that Kampê ('the Winding-one'), the Time-serpent, is slain by the solar Dionysos (Vide *sup.* p. 216), the Time-king; that is, the Sun in his career across heaven, reaches the turning-points in the east and west, and destroys the circles and cycles of Time which he himself marks out and brings into existence (Vide R. B. Jr., *G. D. M.* ii. 72-4). Another gem, representing *Ursa Maj.*, *Ursa Min.*, and *Draco* has already been noticed (*Sup.* p. 265). On the question of the significance of the designs on various Greek gems and coins, the student should consult the works of Prof. D'Arcy Thompson (Vide *sup.* pp. 7, 141, 271).

The *Episêmon*, or device on the Greek Shield, frequently consists of one of the figures also employed as a constellation. Thus, we find on shields the Bird, Bowl (*kantharos*), Bow, Bull, Bull's-head, Chariot, Centaur, Crab, Dog, Dolphin, Eagle, Fish, Goat, Gorgoneion (Cf. *Il.* xi. 36), Harmodios, and Aristogeitôn (= Twins), Horse, Horse (demi), Lion, Lion (demi), Pêgasos, Ram's-head, Scorpion, Serpent, Ship (demi), Star, Swan, and Tripod, etc.; and all the constellations appeared on the Shield of Achilleus. The 'Shield of Hêraklês' bore a mighty Serpent (*Drakôn*) girt with the heads of twelve terrible Snakes (ὀφίων). The close connexion between the Phoenicians and the Karians has been mentioned (*Sup.* p. 284); and the latter, who were constantly employed by the former as mercenaries, 'were the first . . . to put devices on shields (Hêrod. i. 171). Prof. Sayce observes, 'The Karians, as we now know, were once subject to Hittite influence. I am tempted to see in the emblems or symbols on the shields a reminiscence of the Hittite hieroglyphics' (*Trans.* Soc. Bib. Archaeol. vii. 303-4).

The designs upon Greek Vases supply, in like manner, very numerous instances of the constellation-subjects, including all those which appear on shields; and also the Altar, Andromeda, Archer, Argô, Arrow, Ear-of-corn, Grape-cluster, Hare, Hêraklês with his various opponents, Kêpheus, (*Cat. Vases Brit. Mus.* vol. i. 244: 'Kêpheus is seated on a rock'—*kêph*, vide *sup.* p. 232), Lyre, Ôrîôn, Perseus, Quadriga, Ram, Sea-horse, Sea-monster (= Skyllê), Twins (Dioskouroi), Urn, Virgin (Aphrodîtê), Water-pourer (Ganymêdês), and Wolf. Kallistô to some extent represents the *Great Bear;* but the *Lesser Bear*, the *Bearward*, *Kassiepeia*, the *Snake-holder*, *Stream* and *Crab*, so far as I am aware, do not appear on the Vases. The number of exceptions is singularly small. The Zodiac occurs in very late pottery.

There are a few designs on early Vases which are probably connected with Phoenician divinities in a stellar phase. Thus, on a Vase (Figured in Roscher's *Lex.* p. 1671) is shown Zeus, in the act of kneeling on one knee (= *Engonasin*) and holding a thunderbolt in his right hand, attacking a huge winged monster, half man and half a double-snake, who is apparently crying out in alarm, is unarmed, and is not making any effort to defend himself. This certainly is not in origin any scene in the *Gigantomachia*; to begin with, there is no battle at all. To the Greek the Serpent is a symbol of the earth, and hence is at times connected with special Earth-children such as the Giants, Erichthonios, etc. But these creatures are not winged, and in origin we probably have here a phase of Baal Tsephôn ('Lord of the North'), god of the storm-wind, and identical or connected with the *Nakhâsch qadmûn* ('Old Serpent') of the Phoenician kosmogony (Vide *sup.* p. 29). Baal Tsephôn is also connected with Typhôn (Τυφάων, Τυφωεύς), Eg. Tebha, a creature of monstrous form, who in Hellenic and Western Asian idea is associated with hurricane and volcanic disturbances. And it is noticeable that this Ph. North-wind-god has, in spite of Greek feeling, impressed his unanthropomorphic character upon the Thrakian Boreas, who, on the Chest of Kypselos, was similarly represented with serpents' tails instead of feet (Paus. V. xix. 1). Boreas in art is generally merely a winged-man, but in one instance he appears on a Vase (Figured in Roscher's *Lex.* p. 810) as Janiform, a circumstance which still further illustrates how his concept has been touched by the influence of un-Hellenic art. In Phoenician kosmogony-theories and religious belief the Serpent and the Wind played very prominent parts. It was from the Wind, Kolpia (= *Qôl-pîa'h*, 'the Voice-of-the-Wind') and his consort Baau ('Emptiness'), the Babylonian goddess Bahû, that, according to one view, all powers and personages sprang; and this line of idea is the basis of the Homeric myth of Boreas and the mares of Erichthonios (*Il.* xx. 221-9; vide Paley, *The Iliad of Homer*, ii. 127, for similar illustrative instances). Baal Tsephôn is constellationally connected with *Kêpheus* and *Drakôn* (Vide *sup.* p. 30; R. B. Jr., *O. N. C.* pp. 14-16).

In the art of Kypros, that meeting place of races and cults, constellation-subjects abound. We find the Altar, Archer, Archer kneeling (Cf. Hêraklês Engonasin), Bear, Bear-headed figure, Bird, Bowl, Bucranium, Bull, Bull's-head, Centaur (Vide Cesnola, *Salaminia*, p. 243; Perrot and Chipiez, *Hist. of Art in Phoenicia and its Dependencies*, 1885, vol. ii. p. 200), Charioteer, Dog, Dolphin, Dolphin's-head, Dove, Eagle, Ear-of-Corn, Fish, Goat, Goat's-head, Grape-cluster, Hêraklês with lion-skin, club and quiver; Horse, Lion, Lion's-head, Lyre, Pêgasos (Vide Cesnola, *Sal.* p. 297; Perrot, *ut sup.* p. 303), Ram, Sea-horse, Serpent, Ship, Swan, Tripod, and Virgin (Aphrodîtê).

We also meet with an elegant Aquaria, styled ΘΕΑ Η ΟΜΒΡΙΟΣ, kneeling on one knee, and holding her Urn downwards (Vide Cesnola, *Sal.* p. 199). A Charioteer (Vide *Ibid.* p. 240) is driving a *τέθριππον* ('four-horse-chariot') of precisely the type which, made in terra-cotta, is often found in Phoenician cemeteries (Vide Perrot, i. 210). This latter is in turn a reproduction of the car of the Hêniochos-Auriga of Euphratean Cylinders (Vide Lajard, *Culte de Mithra*, Pl. xli. No. 3; Cullimore, *Oriental Cylinders*, Part i. Fig. 6; R.B. Jr., *O. N. C.* pp. 10-11). What is apparently a Sea-monster is shown on a fragment of a lamp; and the lunar Bull is admirably wrought on the handle of a bronze vessel which bears three Bull's heads, the horns, in each case, curling round in an unnatural manner into a crescent. A gem (Cesnola, *Sal.* Pl. xv. No. 59) bears a figure, apparently that of a female, about to sit down on a chair the back of which slopes outwards. The combination is remarkably suggestive of the stellar Kassiepeia. The Kypriot Cylinders, whose designs are, as of course, variant reproductions of Euphratean originals, show, amongst other features, 'the Paphian goddess' (= 'Aschthârth-Istar) and her doves; the Gryphon (Vide *sup.* pp. 172, 179); and, very frequently, 'the head of an ox, a well known Hittite character' (Sayce, in Cesnola, *Sal.* p. 122), found equally on Kypriot coins and on Mykenaian rings. One 'cylinder is manifestly a rude imitation of a Babylonian gem, representing the battle between Merodach and the demon-birds' (*Ibid.* p. 120). Pellets or stars, suns, crescent moons, and various animals in unnatural positions (*e.g.*, adoring) and combinations, appear on the Kypriot, as on the Euphratean, cylinders. Amongst constellation-subjects the Goat, Lion, Ram, Serpent, and Bull's-head are prominent.

The Hittite script shows the following, and possibly some other, constellation-subjects:—The Altar, Bowl, Bird, Bull's-head combined with lunar crescent, Bull's-head, Dove, Eagle, Fish (? *H.* iv., l. 1), Goat's-head, Hare, Ram's-head, Serpent, Tortoise (Vide Wright, *Emp. of the Hittites*, Pl. vii., l. 1), and isosceles Triangle (= *Deltôton*). This latter, according to Prof. Sayce, is the ideograph of 'king.' The Lion appears in Hittite art, or, as at Marash, inscribed with Hittite characters. The famous monument at Ivriz (the best representation of which is in Ramsay and Hogarth, *Pre-Hellenic Monuments of Cappadocia*, 1891, Pl. iii.), shows a divinity (Baal Tarz) who is either actually, or, at all events, practically, a Dionysos; and whose horned cap and carefully curled hair and beard are entirely in the Euphratean style. His right hand holds a vine branch with four large Grape-clusters, and his left perhaps an Ear-of-corn (Vide Sayce, *The Hittites*, p. 111). Before him stands a comparatively diminutive Votary, clad in a Euphratean robe and holding up his hands in adoration, like the Gryphon on some Kypriot cylinders. A scene at Fraktin, 'a village lying due south of the central peak of Argaeus,' shows the Great Goddess seated on a chair of the Kassiepeia-type, *i.e.*, with a sloping back, with an infant apparently on her knee, before an Altar upon which are certain objects, and above the topmost of them, which the goddess holds with her left hand, is a Dove (Ramsay, p. 19). The Bull and Goat appear amongst the sculptures at Eyuk. Another famous Hittite symbol is the twy-headed Eagle, which is sculptured on the rocks at Boghaz Keui (Pteria, '*pteris* being the Greek name of the *pteris aquilina* or fern with leaves like a double eagle.' Sayce.), and which was adopted by the Seljukian Turks, and subsequently in 1345 by the Emperor of Germany. The well-known Hittite terra-cotta seals (Figured in Wright, *Emp. of the Hittites*, Pl. xvi., and elsewhere) show (1) a Dog, upon whose back stands a human figure ; (2) a Dog, above which are two stars and two other symbols ; and (3) a Pêgasos, galloping, with wings out-spread, one above and the other below him ; in the field, a Bull's-head, a Crescent, and three pellets (= stars). As a matter of course, the Hittites, like their neighbours from whom they borrowed so much, would pay considerable attention to the host of heaven. In 1886 Prof. Sayce wrote me :—'In the Hittite texts the bull's head interchanges with syllables *e-me-er*. So that "the Country of the Bull's head" is "the Country of the Amorites." This bears out the statements of the Egyptian monuments, according to which "the land of the Amorites" extended northwards to Carchemish, as well as of the cuneiform inscriptions with their Gar-emeris.' The Hittite sun-god Sanda or Sandû (Gk. Sandôn) stood at the head of the Kilikian pantheon. He is a variant phase of the fighting sun-god of Western Asia, the Harekhal-Hêraklês of Phoenicia (Vide Movers, *Phönizier*, i. 458-61). Sandakos ('the-Son-of-Sanda.'

Sayce.) is said by Apollodôros (III. xiv. 3) to have gone from Syria to Kilikia 'where he founded the city Kelenderis.' With the interesting question of the interpretation of the Hittite Inscriptions, and the efforts of Prof. Sayce, Jensen, Tylor, Condor and others in this direction, I am not here concerned. The Hittite language will probably prove to be akin to that of Van, and the nearest modern representative of such a form of speech would be the Georgian.

With respect to Hittite influence in the direction of the Aigaion, Prof. Sayce sums up the matter by saying, 'It was Babylonian culture which the Hittites carried with them to the nations of the west. . . The remains found by Schliemann at Hissarlik . . point unmistakably to Babylonian and Hittite influence' (*Trans.* Soc. Bib. Archaeol. vii. 272-3). The 'mural crown' was a Hittite invention, and the Great Goddess of Asia Minor Kybelê, Kybêbê, Mâ, Omphalê, the Ephesian Artemis, was Hittite in character and ritual. But, not in origin, for Gargamis (Karkhemish) was the halfway house between Babylônia and the West; and its goddess, afterwards the well-known Syrian divinity of Bambŷkê-Hierâpolis, 'was the Nana or Istar of Babylonia.' 'There was a time when the Hittites were profoundly affected by Babylonian civilization, religion and art' (Sayce, *The Hittites*, p. 116). From the Hittite inscriptions Prof. Sayce acutely conjectures that the Greeks obtained the '*boustrophedon* mode of writing,' which was not practised by Assyrians, Phoenicians or Egyptians; and he observes that 'When Ephesos passed into Greek hands . . . the priestess of Artemis still continued to be called "a bee," reminding us that Deborah or "Bee" was the name of one of the greatest of the prophetesses of ancient Israel' (*Ibid.* p. 79). 'At Hierapolis and Aleppo [Tammuz] was known as Hadad [Adad, Macrob. *Sat.* i. 23; Vide *sup.* p. 225.] or Dadi, while throughout Asia Minor he was adored under the name of Attys "the shepherd of the bright stars"' (*Ibid.* p. 109). On the sculptures at Boghaz Keui is 'a youthful god, with the double-headed battle-axe in his hand' (*Ibid.* p. 90; vide *sup.* p. 300). The 'maneh of Carchemish' was long a standard of value in East and West, and in origin it was merely the Babylonian maneh, Gk. μνᾶ. The Hittites excelled in the working of engraved gems, and in this respect, as well as in others, the art of Mykênai shows the most distinct traces of Hittite influence (Vide Sayce, *The Hittites*, p. 119). 'There was a time when the Hittite name was feared as far as the western extremity of Asia Minor, and when Hittite satraps had their seat in the future capital of Lydia' (*Ibid.* p. 78). 'Greek tradition affirmed that the rulers of Mykenae had come from Lydia, bringing with them the civilization and the treasures of Asia Minor. The tradition has been confirmed by modern research. While certain elements belonging to the prehistoric culture of Greece, as revealed at Mykenae and elsewhere, were derived from Egypt and Phoenicia, there are others which point to Asia Minor as their source. And the culture of Asia Minor was Hittite' (*Ibid.* p. 120). 'The Hittites carried the time-worn civilizations of Babylonia and Egypt to the furthest boundary of Asia, and there handed them over to the West in the grey dawn of European history' (*Ibid.* p. 121).

These general conclusions respecting the position of the Hittites I think well to place before the reader in the words of Prof. Sayce, who thus sums up the result of his own researches, and of those of various modern scholars. The religion, ritual, art, and commerce of Babylônia penetrated by degrees amongst the mixed populations of Northern Syria and Asia Minor, whether Semite, Turanian or Aryan. They dominated Kypros, they impressed themselves in a lesser degree upon Krêtê and Mykênai. But they are everywhere present, and an important factor in the situation. Each nationality impresses upon them its own phase and wears them with a difference; and it is as yet impossible to lay down the exact proportions in which Egyptian, Phoenician and Hittite influences blend with a certain amount of native substratum in making up a complex civilization like that of Mykênai. But the general principles are clear, and the historical and archaeological discoveries of the future will probably reveal almost all the important facts of the case. 'The Hittites were a literary people. The Egyptian records make mention of a certain Khilip-sira, whose name is compounded with that of Khilip or Aleppo, and describe him as "a writer of books of the vile Kheta." Like the Pharaoh, the Hittite monarch was accompanied to battle by his scribes' (Sayce, *The Hittites*, p. 125). 'We must not forget that in the days of Deborah, "out of Zebulon," northward of Megiddo, came "they that handle the pen of the writer"' (*Ibid.* p. 126; *Judg.* v. 14). That this literature, like that of the Euphratean nations and of the Phoenicians, treated, amongst other things of astronomy and astrology cannot reasonably be doubted. The reference to 'the bright stars' and Attys their solar Shepherd, who probably reappeared in a stellar reduplication, like the Ak. Sibzianna (Vide *sup.* p. 287); to the Pêgasos, the Dog and stars, and other constellation-subjects which appear in Hittite art, all show that such was the case; and, as regards the Greeks, it is, as noticed, chiefly amongst those of Asia Minor and the islands adjacent that astronomical knowledge at first is found. This reached them alike by sea and land, from Phoenician and from Hittite; and the general unity in origin and to a great extent in character of this celestial lore is illustrated by the fact that, as shown in the present chapter, alike in the art of Troia, Tiryns, Mykênai, Krêtê, Kypros, of Greek gems, shields, and vases, and of the Hittites, we find the primitive constellation-subjects with a persistency and in numbers far greater than a normal proportion would allow if independent of special sacred and familiar associations. This but confirms the emphatic testimony given by the coins of different nations in the same localities. And here I will quote some excellent remarks of Prof. D'Arcy Thompson on an erroneous theory respecting various types and symbols. He says:—

'Prof. Ridgeway's now widely accepted views on the patterns of ancient coinage would give a meaning to coin-types where numismatists had none to offer before, but it is a meaning foreign to all we know of ancient symbolism. His theory is that not merely the ox, but the tortoise, the fish, the silphium plant, the ear of corn, and so forth, represent articles of general or local commerce whose barter the coins replaced . . . Mr. Ridgeway's theory is of a piece with the speculations of those who, running folk-lore to the death, seek to read antiquity in the light of savagery; who see the childhood of the world in an age of astronomic science, symbolic art, and mystical religion, and who arrive at what I unhesitatingly regard as misconception by the double blunder of unduly depreciating the complexity of archaic Greek thought, and unduly exalting the importance and too freely correlating the results of their own study of incipient or semi-barbarous civilizations' (*Bird and Beast in Anct. Symbolism*, pp. 182-3).

This is admirably put. Let anyone who inclines to the barter theory of coin-types go through the long list which I have given, and he will, by the aid of such a principle, obtain novel and highly humorous views of early commerce. A considerable trade, it would seem, must have been carried on at one time, *e.g.*, in gryphons and man-headed bulls; and if we find on one coin a Fish and on another a Serpent, may we suppose that these creatures formed the subject of general barter? According to Prof. Ridgeway, the Tortoise must have constituted an important article of commerce (Vide *sup.* p. 207); and the trade done in Eagles would be simply enormous.

Having now completed our survey of the primitive constellations of the Greeks, and of constellation-subjects, as they appear in the earlier Greek literature and art, in the non-Hellenic art of the Aigaion and of Asia Minor, and on Phoenician and Etruscan coins; we must next pass eastwards to the Euphratês Valley, and consider Babylonian astronomy and astrology as they existed under the sway of the successors of Alexander.

CHAPTER VIII.

Babylonian Astronomy after Alexander.

The overthrow of Dârayavaush III. presented most unexpectedly a final and marvellous chance of headship and supremacy to the mighty city which had witnessed the far-off glories of Khammurabi and the comparatively recent and almost unparalleled splendours of Nabukudurra-utsur (Nebuchadrezzar) the Great. For the wondrous Macedonian, even at that supreme moment when fate and gloomy night encompassed him around, had decided that Suanaki ('the Place-of-heavenly-power') known as Tintirki ('the Place-of-the-Tree-of-life'), and Kâ-dingira ('the Gate-of-the-gods'), which latter appellation the Semite rendered Bab-ili, Bâbilu (Babylôn), should be the centre and capital of a world-wide empire. The last few months of a life whose storm and stress have only been equalled by the careers of Hannibal and Napoleon were spent in surveying and repairing the canals adjacent, in visiting the tombs of ancient kings situated in the marshy region west of the Euphratês (Cf. Strabo, XVI. i. 11), in marshalling the Army of the West, and in receiving ambassadors and delegates from almost every region between Bakhdhi ('the Highlands,' Pers. Bâkhtri, Gk. Baktra) and Gaul. Envoys from Spain and Italy, from Qarth-hadasth (Carthage) and the Aithiopian Meroê far in the south where Neilos hid his sacred head, waited upon the conqueror of Parsa (Persia) to know his pleasure. One Power alone was unrepresented in that mighty gathering, and had not the relentless Atropos so early cut the thread of this superb and splendid life, it seems almost a certainty that Rome would have had to encounter the banded forces of three continents led by a general perhaps not inferior to the son of Hamilcar. *Dis aliter visum*, and the death of Alexander sealed the doom of Bâbilu. The conquest of Nabunâhid (Nabonidos) by Kuras (Cyrus) in B.C. 538 had not seriously affected the position or headship of the sacred city of Bêl. Kuras and his son Kambujiya (Kambŷsês) were, as the cuneiform records have shown, votaries of the Babylonian religion; and under their sway Babylôn continued to be the capital of the empire. It was only after the accession of the great Dârayavaush in B.C. 521 that the sacred city, for the first time since old Assyrian days, experienced the humiliation of a real subjection, the chief elements in which were that it was reduced to the level of a provincial capital, and subjected to a heavy taxation, whilst its religion, if not altogether disendowed, was promptly disestablished. Dârayavaush, the monotheist, whose sole divinity was the Avestic Ahura-Mazda ('the All-knowing-lord'), Aûramazdâ, Ormazd, was not likely to look with favour upon Bêl and the complex Babylonian pantheon. As a natural consequence the Babylonians, when opportunity offered, broke into revolts, which were suppressed by the Great King with much severity. On the Rock of Baz-istan ('Place-of-the-god'), Behistun, he has left an account of the principal campaign against Babylôn and his capture of the city. But Dârayavaush was no tyrant in the ordinary sense of the word, and his career, considering the age he lived in, is free from the terrible and deliberate cruelty which unbridled power so often produces in the despot. According to a not very probable statement of Hêrodotos (i. 183), the king plotted to carry off a golden statue 12 cubits high from the temple of Zeus-Bêlos, 'but had not the hardihood to lay his hands upon it.' It seems clear, upon the whole, that the sacred treasures of Babylôn and the cult of Bêl remained undisturbed during his reign. His far feebler and more tyrannical son Khshayârshâ (Xerxês) advanced much further in the direction of absolute oppression. Early in his reign, provoked by attacks on their religion, the Babylonians again rebelled and were again subdued. Either then or on the king's return from Greece the temple and great Tower of Bêlos were plundered and partly destroyed, the walls dismantled to a considerable extent, and other public buildings either injured or demolished (Vide Strabo, XVI. i. 5; Arrian, vii. 17, etc.). According to Hêrodotos the famous golden statue was removed, and a priest, who protested against the act, was put to death. Gradually, however, as the fervour of the monotheism of the race of Hakhâmanish (Gk. Achaimenês) cooled, Babylôn somewhat recovered her position. The burning of the palace of Susun (Shushan, Susa) the capital of Anzan, the original kingdom of Kuras, an event which occurred during the reign of Artakhshatra I. (Vide *Susan Ins.* of Artaxerxês II.), was one cause amongst several which induced the Persian monarchs for some years to reside chiefly at Babylôn, and there Dârayavaush II. died. His son Artakhshatra II., surnamed Abiyâtaka ('Having-a-good-memory,' Gk.

Mnemôn) was a votary of the Avestic Ardvi Sûra Anâhita ('The High, Powerful, Undefiled-one',) 'the heavenly spring from which all waters on the earth flow down' (Darmesteter), 'the beneficial influence of water' (Haug). This goddess appears in his Inscription above-mentioned, under the name of Anâhata, together with Ormazd and Mithra. Anâhita, Gr. Anaïtis, Anaitis, according to the account of Agathias (ii. 24) was evidently represented by Bêrôsos, and doubtless regarded by the Babylonians, as really identical with Istar, or possibly with Nana. To the Greeks, therefore, Anaitis at once became Aphrodîtê; and so we find Clemens Alex. stating, 'Bêrôsos, in the third book of his *Chaldaïka*, shows that it was after many successive periods of years that men worshipped images of human shape, this practice being introduced by Artaxerxês, the son of Dareios and father of Ôchos, who first set up the image of Aphrodîtê Anaitis in Babylôn and Susa, and taught her worship to the people of Ekbatana, to Persians and Baktrians, to the inhabitants of Damaskos and Sardis' (*Protrept.* V. 65). All such influences tended to foster the importance of Babylôn, and the city must still have been vast and magnificent when Alexander determined that it should be the capital of his mighty empire, a choice which further indicated that the period of Persian supremacy had vanished. In religion Alexander was as accommodating as heart could wish. As Mr. Hogarth well says :—

> 'Now at Babylon a dignity, still more catholic, in which Macedonian kingship and Hellenic hegemony would alike be absorbed, was beginning to loom in his mental vision. Always as he advanced, he widened his pantheon to receive successively

Melkarth and Amen, Jehovah and Bel' (*Philip and Alex. of Macedon*, pp. 208-9).

At the time of his death Alexander appears to have been on excellent terms with the Babylonian priesthood. Diodôros (ii. 31) declares that they correctly foretold things to him and to Seleukos, and their solemn warning to him not to enter the city at the time he did, nor with his face to the west, the region of sunset and of death, was probably given in all good faith. The Kaldai (Chaldaeans), originally a comparatively small tribe, dwelling on the shores of the Persian Gulf, had conquered Babylônia under Merôdach-balâdan ; and at the time of Khshayârshâ the name still designated a small nationality (Vide Hêrod. vii. 63). But even Hêrodotos (i. 181-3) uses the term more particularly in connexion with the Babylonian priesthood; and in the age of Alexander the title, as employed at Babylôn, was almost certainly restricted to the learned professors of religious knowledge and occultism, who were invariably either actually members of the priestly body or in some way closely connected with it. It is in this aspect that the Chaldaeans appear in the Book of *Daniel;* and these are the Chaldaeans who, according to Ploutarchos, warned Alexander against his unpropitious entry into Babylôn. In later times the term 'Chaldaean' as used by the Latin poets merely signifies an Occultist, astrologer or otherwise. In Strabo's (XVI. i. 6) day some of the old stock of the Kaldai still inhabited their ancient dwelling-place 'in the neighbourhood of the Arabians, and of the sea called the Persian sea'; but he applies the term 'Chaldaeans' more particularly to 'the native philosophers, who are chiefly devoted to the study of astronomy. Some, who are not approved of by the rest, profess to understand genethlialogy, or the casting of nativities.' They consisted, he says, of various sects with differing opinions. 'The mathematicians make mention of some individuals among them, as Kidên, Naburianos and Soudinos.' Unfortunately the works of the Greek mathematicians referred to have not been preserved. The fraternity was ultimately not one of nationality, but of special knowledge, and so he concludes, 'Seleukos, also, of Seleukeia is a Chaldaean, and many other remarkable men.' During the last days of Alexander the court swarmed with sacrificers, purifiers and prognosticators; they were all to be seen exercising their talents there (Vide Plout. *Alex.* 706 B). The night before the king's death some of his chief generals 'kept vigil in the fane of Serapis,' (Hogarth, p. 275) seeking in vain for some favourable sign from the god; and doubtless the Chaldaeans were as busy as their various co-religionists in expedients deemed suitable to the occasion. As men of the world they must have known that the death of the childless monarch who stood alone on an awful pinnacle of grandeur and glory, would inevitably produce strife and disorder; and that from such confusion Babylôn could not gain, and might easily lose. At the time of his death Alexander was engaged in 'restoring' what Strabo calls 'the tomb of Bêlos. It was a quadrangular pyramid of baked brick, a stade in height [=607 feet], and each of the sides a stade in length.' Ten thousand men had been working for two months at the repairs. Babylôn, if only this precious life could be preserved, might rise in phoenix splendour to a new career of glory before which the renown of earlier days would vanish like Lucifer at sunrise. But hopes and prayers, and vigils and incantations by the combined force of the assembled ritualists, were all in vain; at the time of a glorious sunset on some day in the first half of June, B.C. 323, Alexander passed into the Unseen, and 'deep silence fell upon the great city and camp of Babylon for four days and four nights' (Hogarth, p. 276). When the mighty funeral train at last set forth from the capital to deposit the body of the Conqueror in the great city which he had founded and upon which he had bestowed his name, many a thoughtful Chaldaean must have entertained grave misgivings that he was practically beholding the funeral of Babylôn herself. As Alexander had founded Alexandria, so must Seleukos found Seleukeia *πρὸς Τίγρει,* and thither were the greater portion of the inhabitants of Babylôn transferred, a fact recorded in a cuneiform tablet to which that worthy scholar the late Geo. Bertin first called attention. He says 'the fact has been doubted,' but there was certainly no occasion for any scepticism. After speaking of the effort of Alexander to repair 'the tomb of Bêlos,' Strabo (XVI. i. 5) continues:—

> 'None of the persons who succeeded him attended to this undertaking; other works also were neglected, and the city was dilapidated, partly by the Persians, partly by time, and through the indifference of the Macedonians to things of this kind, particularly after Seleukos Nikâtôr had fortified Seleukeia on the Tigris near Babylôn, at the distance of about three hundred stadia. Both this prince and all his successors directed their care to that city, and transferred to it the seat of empire; at present it is larger than Babylôn, which is in great part deserted, so that no one would hesitate to apply to it what one of the comic writers said of Megalopolis, "The great city is a great desert."'

Seleukos was probably the best of the successors of Alexander, and Pausanias (I. xvi. 3) expresses himself as persuaded that the king was upright and reverential in matters divine, inasmuch as he restored to the Milesians a statue of Apollôn which Xerxês had carried away to Ekbatana; and 'when he had built Seleukeia on the river Tigris, and had brought away the Babylonians to inhabit it, he left remaining the wall of Babylôn and the temple of Bêl, and allowed the Chaldaeans to dwell around it.' Probably the circumstance will not appear to us as furnishing much proof of religious excellence; but, at all events, it indicated a judicious toleration. 'The temple of Bêlos' and 'the wall of Babylôn' were all that was left of the city in the age of Pausanias (VIII. xxxiii. 1).

'Babylon,' says Bertin, 'died a slow death; its temples were, little by little, deserted, and fell into ruin. The ceremonies, however, went on before a more and more reduced congregation, and the cuneiform writing was still studied and used. We have tablets down to the Christian era, and perhaps later, and it appears to have been superseded only by the introduction of Syriac by the Christians' (*Babylonian Chronology and History*, p. 27).

Thus inch by inch, her ruin from time to time accelerated by shocks of earthquake, fell Babylôn 'the glory of kingdoms, the beauty of the Chaldees' excellency.' Sinking ever more and more beneath the accumulated rubbish of ages, and in the increasing marsh formed by waters no longer channelled and directed, thorns came up in her palaces and brambles in her fortresses. As man retired, his place was supplied by the wild beasts of the desert; there ranged the hyena and the jackal, there leaped the rock-goat. And, lastly, as desolation deepened, and there were stretched out upon it the line of wasteness and the stones of wildness, gloom intensified in horror ; the region became, in the imagination of all who knew it, the special haunt of accursed creatures, the abode of Lileth (Cf. Is. xxxiv. 14), the night-demon, last representative of the god Mul-lil, a place where, to reproduce the ancient belief of the land, the Usumgallu ('Solitary-monster') might feast upon the corpses of the dead, and where the various demons of 'the mountain, the field, the tomb' were wont to meet in hideous revelry. Thus was preserved the archaic connexion of the spot with magic and mystery, and the later Persians, faithful to their hatred of him whom they called 'the accursed Alexander,' located 'in the land of Bawri' (*Âbân Yast*, 29), *i.e.*, Babylôn, the 'accursed palace' (*Ram Yast*, 19) of Azi-Dahâka ('the Fiendish-snake'), 'a three-headed-dragon' (Darmesteter), who is one of the most remarkable of the reduplications of the Euphratean Hydra-Tiâmat.

This brief notice of the fortunes of Babylôn during the last six centuries of its existence, may enable us to appreciate the better the position and character of Babylonian astronomy under the Seleukids ; and here, as ever, we must hold a middle course. On the one hand, we shall find the most extravagantly high estimates of 'the learning of the Chaldaeans' (Dan. i. 4), such as Χαλδαῖοι· γένος μάγων πάντα γινωσκόντων (Hêsychios) ; on the other, we meet in some modern, and even recent, writers the view that they knew little or nothing about astronomy until brought within the illuminated sphere of Greek genius, the results of which they had the good sense to adopt. It is of course admitted that they possessed a long series of observations; but these, it is contended, were merely such as any child might have made, *e.g.*, the star A appears, event B happens, and thus on. We will test this opinion by a particular instance:—

'The British Museum possesses a tablet, written 100 years B.C., giving the list of nineteen lunar cycles of eighteen years—that is, a table combining the Metonic Cycle with the *saros*. This *saros*, or cycle of the lunar eclipses, *must have been discovered after the settlement of the Greeks*' [Italics mine.] in Babylôn. Why, pray? What say the Greeks themselves on the matter? We read in the *Lexikon* of Souidas:—*Σάροι*. 'A measure and number among the Chaldaeans. For 120 *saroi* make 2220 years according to the reckoning of the Chaldaeans, since the *saros* contains 222 lunar months, which make 18 years and 6 months.' Canon Rawlinson, speaking of Babylonian astronomy, observes:—

'Their habits of observation led them to discover the period of 223 lunations or 18 years 10 days, after which eclipses—especially those of the moon—recur again in the same order. Their acquaintance with this cycle would enable them to predict lunar eclipses with accuracy for many ages, and solar eclipses without much inaccuracy for the next cycle or two' (*Anct. Mons.* ii. 575). And he quotes Gemînos, who, writing about B.C. 77, expressly attributes the discovery of this and connected lunar cycles to the 'Chaldaeans' (*Eisagôgê*, xv.). As regards the Metônic Cycle, the *ἐννεακαίδεκα κύκλα φαεινοῦ 'ηελίοιο* (Aratos, *Diosêmeia*, 21), the Schol. on this passage, after observing that 'tablets,' a Euphratean form of 'book,' were placed in the cities 'respecting the nineteen years' cycle of solar revolutions, how that in each year there shall be such and such a winter, spring, summer and autumn, and such and such winds, and many things for the use of men in their daily lives'; and after stating that 'Aratos himself learnt most things therefrom . . . since they are sung from olden time and are familiar to the Hellenes'; adds, 'And the Hellenes received them from the Egyptians and Chaldaeans.'

Thus, the moment we turn from mere assumption to historical testimony, the theory of the incapacity of the Babylonians for astronomical discovery is at once exploded. We need not suppose that Babylônia would ever have produced an Hipparchos, but that their astronomical attainments were of much assistance to him is absolutely certain; and, had his works been preserved, it is more than possible that all the scientific world would now reverence the names of Kidên and his brethren (Vide *sup.* pp. 118, 319). I will next enumerate certain details of astronomical knowledge possessed by the Chaldaeans of the Seleukid age:—

They had studied the courses of the planets, were aware that Phôspheros and Hesperos were identical, knew the double character of *Mercury* as a morning and evening star, and that the Moon is the nearest planet to the earth (Diod. ii. 31). They knew that sun, moon and planets adhere to the ecliptic and were acquainted with its obliquity; they were aware that *Jupiter* is further from the earth than the other planets except *Saturn*, and that *Saturn* is more remote than *Jupiter*. This implies a knowledge of the periodic times occupied by the revolutions of these bodies. Their ability to predict lunar eclipses, and, to some extent, solar eclipses, has been noticed. They were aware that the moon's light is not inherent but borrowed; and that a lunar eclipse is caused by the interposition of the shadow of the earth. They had mapped out the fixed stars in constellations, northern, zodiacal and southern; and the ecliptic into a lunar zodiac of 30 asterisms, and a solar zodiac of 12 (Vide *Ibid.*). They noticed and recorded occultations of the planets by the sun and moon; and held that eclipses of the sun were caused by the interposition of the moon between the sun and the earth (Aristot. *Peri Ouranou*, ii. 12). 'They knew that the true length of the solar year was 365 days and a quarter, nearly. The exact length of the Chaldaean year is said to have been 365 days, 6 hours, and 11 minutes, which is an excess of two seconds only over the true (sidereal) year' (Rawlinson, *Anct. Mons.* ii. 576). The old lunar year of 12 months of 30 days each (*W. A. I.* III. lii. No. 3, Rev. l. 6) was corrected by intercalary months when necessary. The *nychthêmeron*, or period of 24 hours, was divided, in accordance with the divisions of the equator, into 12 *kasbu* ('double hours') each of which was in turn divided into 60 minutes and each minute into 60 seconds. Thus we read, 'The day and the night were balanced; there were 6 *kasbu* of day, 6 *kasbu* of night' (*Ibid.* III. li. No. 2, l. 2-5). These observations were assisted by a very considerable knowledge of mathematics. 'A tablet from the library of Larśa gives a table of squares and cubes correctly calculated from 1 to 60, and a series of geometrical figures . . . implies the existence of a Babylonian Euclid. The plan of an estate at Babylon, in the time of

Nebuchadrezzar, has been discovered which shows no mean knowledge of surveying' (Sayce, *Herodotos*, p. 403). They had invented the sun-dial, and used the clepsydra and the astrolabe. 'A lens, with a fair magnifying power, has been discovered among the Mesopotamian ruins. A people ingenious enough to discover the magnifying glass would be naturally led on to the invention of its opposite. When once lenses of the two contrary kinds existed, the elements of a telescope were in being' (Rawlinson, *Anct. Mons.* ii. 578). Sir G. C. Lewis, who was inclined, with perverse scepticism, to doubt the familiar statement of Hêrodotos (ii. 109) that the gnomon and the division of the day into twelve parts came from the Babylonians, grudgingly accepts it, chiefly on account of 'the relation of the Greek weights to the Babylonian' (*Astron. of the Ancients*, p. 176). Far more sensible is the standpoint of Canon Rawlinson that 'when the astronomical tablets . . . come to be thoroughly understood [and this period has by no means yet arrived,] it will be found that the acquaintance of the Chaldaean sages with astronomical phenomena, if not also with astronomical laws, went considerably beyond the point at which we should place it upon the testimony of the Greek and Roman writers' (*Anct. Mons.* ii. 577). Lastly, the Chaldaeans held that the kosmos was sustained by Divine Providence ; and that the motions of the heavens did not occur by chance, but by the certain and determinate will of the gods (Diod. ii. 30).

I am not concerned in this work with matters astronomical except incidentally, and therefore shall not pursue this phase of the enquiry further ; but I ask the reader to observe that a great mass of sound knowledge of the kind was *possessed*, not discovered, by the Babylonians of the Seleukid era; and that it was based, not upon anything received from the Greeks, but upon an immense observational experience in the past. If the Greeks had bestowed this or that piece of astronomical knowledge upon the Babylonians, they would have been prompt to record the fact; but, to their credit, the whole testimony of Greek literature shows that they were receivers in the matter. And this is proved to absolute demonstration by the circumstance that, as appears alike from Greek literature and the Babylonian monuments, most of the knowledge which I have specified had been obtained by Euphratean sages thousands of years prior to the age of Alexander. Thus, the *Ziggurat* or tower of the temple of Nabû at Barsipki (Borsippa), which was seven-staged and painted in colours symbolical of the planets, constitutes an ancient monument of planetary knowledge. The names of the Signs of the Zodiac show that the present arrangement was adopted when the sun still entered *Taurus* at the vernal equinox, *i.e.*, between B.C. 4698 and B.C. 2540. The lunar Zodiac, referred to by Diodôros, is contained in a now famous Tablet (*W. A. I.* V. xlvi. No. 1) so difficult that, as yet, no Assyriologist has been able to give a satisfactory translation of the whole of it. I purposely abstain from repeating here the conflicting list of vast periods of years ascribed by Classical writers to the term of Euphratean stellar observations, because I do not doubt that they are all founded on an utter misconception of the meaning of the numbers employed; and I will deal with this branch of the subject in connexion with the ten antediluvian kings.

Suffice it to remark that the Latin translation of the commentary of Simplikios on the *Peri Ouranou* of Aristotle states, on the authority of Porphyrios, that Kallisthenês, who accompanied Alexander to Babylôn, sent Aristotle a series of Euphratean astronomical observations covering the period of 1903 years, that is, commencing about B.C. 2226. There is nothing in the least improbable in this; and it may be noticed that Synkellos places Bêlos, who, he says, 'first reigned over the Assyrians,' and of whom Pliny says, 'Inventor hic fuit sideralis scientiae' (*Hist. Nat.* vi. 36), B.C. 2286.

With reference to the opinion that there are no 'real astronomical documents' and that there was 'no astronomy' before the Greek period, ere entering into details it is to be observed:—

1. Notwithstanding the very large amount of cuneiform astronomical literature which we possess, the greater part of it has perished, or has not yet been recovered. We shall therefore never know all that it contained.

2. As a multitude of persons are interested in superstition for every single individual who is interested in science, purely scientific observations would have the least chance of being preserved, and probably attracted but very little attention. In later times the discoveries and works of Hipparchos passed almost unnoticed; and the poem of Aratos, in all probability, owes its preservation to the fact that from an early date it was accompanied by pictorial illustrations.

3. It was expressly asserted by Bêrôsos that 'from Nabonasaros [Nabû-natsir, B.C. 747] the Chaldaeans have an exact account of the movements of the stars,

since Nabonasaros collected and suppressed [as far as he could] the records of the kings before him' (Synkel. *Chronograph.* p. 207, B.), 'in order,' says Canon Rawlinson, 'that exact chronology might commence with his own reign.' It is impossible, therefore, to say what amount of astronomical observations may then have perished.

4. In B.C. 689 the Assyrian king Sin-akhi-erba ('The Moon-god-has-given-brothers,' Sennacherib) captured Babylôn. The Assyrians on this occasion plundered the treasures, destroyed the images of the gods, burnt the houses, levelled the walls, and threw down the temples and towers (Vide Smith and Sayce, *Hist. of Babylonia*, 1895, p. 130). 'The older library of Babylon,' says Prof. Sayce, 'perished for the most part when the town was destroyed by Sennacherib' (*Herodotos*, p. 399). It is, to a great extent, owing to the care and literary tastes of the cruel Assur-bani-pal, the Louis XIV. of Assyria, who succeeded his father Assur-akh-iddina (Esar-haddon) in B.C. 668, that so much of the old literature of Babylônia has been preserved.

These important circumstances should be carefully borne in mind when considering this question; and I will next give an illustration of another baseless inference:—

'Ptolemy mentions that a continuous series of observations of lunar eclipses was in existence in his time up to the era of Nabonassar (*Meg. Synt.* iii. 6), referring elsewhere to the five earliest Babylonian eclipses known to Hipparkhus, of 721, 720, 621 and 523 B.C. The inference drawn from Ptolemy's words by Sir G. C. Lewis (*Astron. of the Ancients*, p. 288), that the series of recorded eclipses did not ascend beyond B.C. 747, is overthrown by the single fact that the official archives of the Assyrians note the solar eclipse of the 15th of June, B.C. 763' (Sayce, in *Trans.* Soc. Bib. Archaeol. iii. 149).

I will next give an instance of a real 'astronomical document' prior to the Greek period. 'Nous possédons . . une tablette astronomique babylonienne . . qui n'est pas obscurcie par des superstitions astrologiques. Ce texte, . . concernant l'an sept de Cambyse,' B.C. 523-2, contains observations on the moon, and on the risings, settings, and conjunctions of planets, 'et le texte finit par la description de deux éclipses lunaires, les seules qui aient été visibles à Babylone durant cette année 7 du règne de Cambyse.' The contents of this Tablet were known to the Greek astronomers; and a translation of it, as M. Oppert shows, is actually contained in the *Almagest* (Vide *sup.* p. 118). We could not have a more absolute proof that pure astronomical research obtained at Babylôn prior to the era of Alexander (Vide Oppert, *Un texte babylonien astronomique et sa traduction greque d'après Claude Ptolémée*, in the *Zeit. für Assyriologie*, März, 1891, p. 103 *et seq.*).

The one prominent literary figure of the latter days of Babylôn is the priest of Bêl whom we know under the Greek form of his name as Bêrôsos or Bêrôssos. In his *Chaldaika*, the materials for which he states that he derived from the archives of the temple of Bêlos, he purports to give an account of Babylôn, and to some extent of Babylônia, from the earliest times. He gives the creation legend, the myth of the sea-god Ôannês, introducer of civilization, the succession of the ten antediluvian kings, and the story of the .Deluge. This was followed by an account of the latter history of the city down to its capture by Kuras. He also wrote on the history of Mada (Media. Vide Agathias, ii. 24). He was born in the reign of Alexander and appears to have compiled his works in the reign of Antiochos II. B.C. 261-46. He also composed various astronomical treatises, which have unfortunately been lost; they furnished material for Greek writers such as Diodôros, and the most important of them was a translation of what Prof. Sayce calls 'the standard astrological work of the Babylonians and Assyrians,' *i.e.*, the *Ênu Bîli* ('the Eye' [= Illumination] of Bêl'). This is why Seneca writes, 'Berosus, qui Belum interpretatus est' (*Nat. Qu.* iii. 29); and why Bêlos was styled the 'inventor' of astronomy (Vide *sup.* p. 328). Opinions of Bêrôsos respecting the moon have been preserved by Plutarch, Stobaios, and Vitruvius, and the latter (*De Architect.* IX. iv. 7) states that he treated of the properties of the Signs of the Zodiac, of the planets, and of the sun and moon; and that he established a school of learning in the island of Kôs. According to Seneca, he held that the world would be burnt when all the planets met in *Cancer*, and destroyed by a deluge when they all met in *Capricorn.* He considered, on astrological grounds, that man might attain the age of 116 years (Pliny, *Hist. Nat.* vii. 50); and in another passage the Roman writer says, 'Astrologia Berosus, cui ob divinas praedictiones Athenienses publice in Gymnasio statuam inaurata lingua statuere' (*Ibid.* 37). The only passage in Bêrôsos which here requires special notice is his list of the antediluvian kings with the lengths of their respective reigns.

The basal numbers of Euphratean arithmetic were 6 and 60, which latter was also the unexpressed denominator of fractions, and the mathematical unit; so that the single wedge stands for 60 (Sem. *sûs-su*, Gk. *σώσσος*) as well as for 1. The Ak. and Sem. *nêr* (Gk. *νῆρος*) = 600, and in Ak. means 'foot'; hence 60 × 10 (toes) = the *nêr*. Lastly, the *nêr* multiplied by 10, in Ak. *pur* ('a heap'), becomes the *sar* ('multitude,' Gk. *σάρος*), *i.e.*, 3,600. Bertin well notes that 60 is the basal 6 multiplied by the 10 (fingers); and 6 = 5 (fingers) + 1 (hand). Again, 60 (= 5 fingers + 1 hand × 10 fingers) × 2 (feet) = 120, which, as we shall see, was an archaic division of the circle, and included the year of 10 and of 12 months (For the connexion between archaic numeration and the parts of the body, vide R. B. Jr., *Ugro-Altaic Numerals: One-Five*, in the *Proc.* Soc. Bib. Archaeol. Feb. 1888; *The Etruscan Numerals*, 1889; and Potts' classic *Zählmethode*, Part i. 1847; Part ii. 1868). According to Bêrôsos, the 10 antediluvian kings reigned 120 *saroi*, (= 3,600 × 120) = 432,000 years. The circle of 120° presupposes the division of each of the 12 Signs into 10°, and as each degree contained 60′ and each minute 60 , 10 × 60 × 60 (= 36,000) = $\frac{1}{12}$ of the circle, and 36,000 × 12 = 432,000, or the circle divided into seconds. We thus at once obtain the clue to the apparently preposterous statement that the 10 kings reigned 432,000 years; and observe that they occupied the heaven circle of the ecliptic. Whatever, therefore, they may have originally represented, they practically appear in the account of Bêrôsos as stellar reduplications; and it next becomes obvious that the lengths attributed to their respective reigns, which are clearly not arbitrary, must correspond with the distances separating certain of the principal stars in or near the ecliptic. So regarded the list appears thus :—

King.	Reign in *Saroi.*		Degrees.	Point in Ecliptic.	Degrees.
1. Alôros (*Ailuv*)	10	=	30	*Hamal*	31
2. Alaparos (*Alap-ur*)	3	=	9	*Alcyone*	10
3. Amillaros (*Amil-ur*)	13	=	39	*Aldebaran*	43
4. Ammemôn (*Umun-an*)	12	=	36	*Pollux*	36
5. Amegalaros (*Amil-gal-ur*)	18	=	54	*Regulus*	53
6. Daônos (*Dannu*)	10	=	30	*Spica*	44
7. Euedôranchos (*Dar-an-khu*)	18	=	54	*Antares*	53
8. Amempsînos (*Amar-sin*)	10	=	30	*Algedi*	20
9. Ôpartês (*Ūbara-tutu*)	8	=	24	*Deneb Algedi*	16
10. Xisonthros (*Xaxisadra*)	18	=	54	*Skat*	54
	120		360		360

The vast periods attributed by Classical writers to Babylonian star-gazing must evidently be dealt with on similar lines. Bertin, in his Lectures at the British Museum on Babylonian astronomy, stated that the Babylonians 'admitted the existence of a cosmical year . . . this period was one of 360,000 years.' Whether he were right or not in his special view of how this period arose in idea, it seems to be connected with a year of 360 days and a division of the circle into 360°, one day being in some way or other representative of or equivalent to 1000 years. When therefore Epigenês of Byzantion (tem. Augustus), who is stated to have studied in Babylônia, declared (ap. Pliny, *Hist. Nat.* vii. 57) that the Chaldaeans had brick records of astronomical observations extending over a period of 720,000 years, these figures, whatever may be the exact meaning of the statement, merely represent 2 kosmical years. The double of this, 1,440,000, or 4 kosmical years is given by Simplikios (ad Aristot. *Peri Ouranou*, 475 B.) as the period of these observations. According to Pliny (vii. 57), Bêrôsos and Kritodêmos of Kôs put this term at 480,000 years; and this figure is perhaps arrived at by quadrupling the original Euphratean circle of 120°, and may be equivalent to the 4 kosmical years of Simplikios. Other large numbers are given by other Greek and Latin writers, but it is needless to notice the question further; particularly since the errors of copyists have to be taken into account. Suffice it that we can now perfectly understand the statement of Bêrôsos respecting the antediluvian kings; and shall find that, in harmony with this explanation, the archaic Euphratean planisphere was divided into a central circle of 120°, an inner or northern circle of 60°, and an outer or southern circle of 240°.

It is to be noticed that these Euphratean ideas connected with kosmic periods appear to have influenced other Asiatic nations. Thus, the Indian system of the Yugas or ages of the world presents many features which forcibly remind us of the Euphratean scheme. The age-cycle is formed by the numbers 48, 36, 24, and 12 = 120, = the number of the *saroi* of the Babylonian kings, whilst 4+3+2+1 = 10. The numbers 10 and 12 thus form the basis of the cycle, 10 kings, 12 lunations, or other divisions of the year. To make up the divine year, the product of these, 120, is multiplied by 100, *i.e.*, by 10 intensified. The 120 thus becomes 12,000 (years), which is also the duration of the Iranian divine year, and which gives 1000 years for each month and for each Sign of the Zodiac

(Vide *Bundahis*, xxxiv.). But a divine day = a human year, and hence a divine year = 360 ordinary years, whence we obtain the figures :—

4,800 × 360 = 1,728,000 (Vide Dowson, *Clas.*
3,600 × 360 = 1,296,000 *Dict. of Hindu Mythol.*
2,400 × 360 = 864,000 1879, pp. 381-2)
1,200 × 360 = 432,000

A Mahâ-yuga = 4,320,000 = 432,000 × 10 (years).

Again, the Iranian stellar host is said to be 6,480,000 in number (*Bundahis*, ii. 5), that is to say, 4,320,000 + 6,000 × 360 (= 2,160,000), or 18,000 × 360, or 432,000 × 15, or a Mahâ-yuga and a half. All these numbers appear to be connected in origin, and are in no case arbitrary, but, in the larger amounts, are intensifications of the smaller.

The Greek divinities respectively connected with the five planets are Kronos, Zeus, Arês, Aphrodîtê, and Hermês, the reason being that they were considered the analogues of Ninip, Marduk, Nirgal, Istar, and Nabû, who were similarly connected with the planets in the Babylonian scheme. The Romans, in turn, acting on the same principle with respect to the Greeks, made Saturnus, Jupiter, Mars, Venus, and Mercurius their planetary gods, whence our modern names for the planets. This very familiar example illustrates the almost slavish dependence in early times of Greek upon Babylonian astronomy. To the mythologist the equations thus established are very interesting. Thus, Ninip was a Sun-god, 'the meridian sun' (*W. A. I.* II. lvii. 51), a circumstance which illustrates the undoubtedly solar element in the concept of Kronos (Vide R. B. Jr., *Sem.* Part III. Sec. xiii.).

An allied subject is the orientation of Greek temples, a highly interesting enquiry which has been specially prosecuted by Mr. F. C. Penrose. From his researches and those of Sir Norman Lockyer (Vide *sup.* p. 6) we find *e.g.*, that *Hamal* was the patron-star of the temples of Zeus at Athênai and Olympia, and *Spica* the patron star of the temples of Hêra at Olympia, Argos and Girgenti. Nor is the reason far to seek. Anu = (by analogy) Zeus, and, as we have seen (*Sup.* p. 54), Anu was the patron-divinity of the *Ram;* therefore the Greek makes his corresponding divinity patron of the *Ram*-star (*a Arietis*). Istar-*Virgo* (with her special star *Spica*) = the Great-goddess-mother of Asia Minor, = (by analogy, the Aryan) Hêra. All such circumstances are admirably illustrative of the true connexion between Euphratean and Greek astronomy; and of the position of the latter as a daughter of the former.

I will now give a particular example of the practice of Babylonian astronomy in the Greek period, viz., the Tablets *No.* 137, 82-7-4, dated B.C. 273, and *Rm.* iv. 397, dated B.C. 232. These two Tablets, which have been edited and translated by the Rev. Fathers Epping and Strassmaier, contain the names of the Signs of the Zodiac and descriptions of various single stars and star-groups in or near the ecliptic; they also record a series of observations of the moon and planets. Thus, Tablet *No.* 137, 82-7-4, which is dated 'the 38th year of Antiuksu (Antiochos) and Silûku (Seleukos) the kings' reads (l. 6):—

'On the 18th—cloudy and dark. On the night of the 19th, in the morning the moon was distant about 6 ammat [An *ammatu*, primarily a 'cubit,'= 2°18′.] from the westerly *Twin*' (*Castor, a Geminorum*).

This specimen will show the general character of the observations recorded; and the list of the star-names which these two Tablets contain, and which I have translated from the Babylonian, is as follows:—

1. 'The westerly-one of the head of the *Ram*' (*Ku*, for *Kusarikku*), = β *Arietis*.

2. 'The easterly-one of the head of the *Ram*,' = α *Arietis* (*Hamal*, 'the *Ram*').

It will be remembered that Hipparchos did not compile his Star-catalogue prior to B.C. 150; and the reader who wishes to understand the influence of the Babylonian upon the Greek sages, will compare the items in this List with those of the Hipparcho-Ptolemy Star-list (Vide *sup.* Chap. III.). In the revised List of the time of Ptolemy α *Arietis* is an unformed star; but Ptolemy notices that Hipparchos placed it 'at the muzzle' of the *Ram* (Vide *sup.* p. 22). And this is evidently the Babylonian position of the star with respect to the constellation-figure. That Hipparchos, who partly resided at Alexandria, had access to the knowledge contained in the astronomical cuneiform tablets we have already had occasion to notice (Vide *sup.* p. 118). As M. Oppert observes, 'Hipparque d'Alexandrie avait à sa disposition des "assyriologues" . . ils connaissaient mieux les cunéiformes que ceux de nos honorés confrères qui croient en savoir bien plus que tous leurs contemporains.' The head of *Aries* was reverted, and looked back towards *Taurus*. So Manilius:—

> 'Aurato princeps Aries in vellere fulgens
> Respicit, admirans aversum surgere Taurum'
> (*Astron.* i. 263-4).

3. 'The Foundation,'= the Pleiad. (*Sup*. p. 274).

4. 'The Yoke,' or 'Furrow,'= *a Tauri* (*Aldebaran*, 'the Follower'—of the Pleiad).

The ecliptic was regarded as a 'Yoke' laid across heaven, and as 'the Furrow of heaven'; and in process of time this name of the ecliptic became transferred, as a technical term, to its foremost first magnitude star.

5. 'The northern light of the *Chariot*' (of *Auriga*), $= \beta$ *Tauri*. Cf. Ptol. *Bull*, Star No. 21.

6. 'The southern light of the *Chariot*,' $=$ ζ *Tauri*. The original *Bull* consisted of the *Hyades* only.

7. 'The westerly-one at the beginning of the *Twins*,'$= \eta$ *Gem*. Cf. Ptol. *Twins*, Star No. 14.

8. 'The easterly-one at the beginning of the *Twins*,' $= \mu$ *Gem*.

9. 'The *Twin* of the *Shepherd*,'$= \gamma$ *Gem*. (Vide *sup*. p. 288).

10. 'The westerly *Twin*,'$=$ *a Gem*. (*Castor*).

11. 'The easterly *Twin*,'$= \beta$ *Gem*. (*Pollux*).

12. 'The westerly-one at the south of the *Crab*,'$=$ θ *Cancri*.

13. 'The middle of the *Crab*,' $= \epsilon$ *Cancri*. Cf. Ptol. *Crab*, Star No. 1.

14. 'The westerly-one at the north of the *Crab*,'$=$ γ *Cancri*.

15. 'The easterly-one at the south of the *Crab*,'$=$ δ *Cancri*.

16. 'The head of the *Lion*,'$= \epsilon$ *Leonis*. Cf. Ptol. *Lion*, Star No. 4.

17. 'The *King*,'$=$ *a Leonis* (*Regulus*. Vide *sup*. p. 62).

18. 'The small-one of the region after the *King*,' = ρ *Leonis*. That such a comparatively small (4th magnitude) star as this, should be separately named, shows how carefully the whole stellar array had been studied and mapped out.

19. 'The end of the tail of the *Dog* of the *Lion*,' = θ *Leonis*. In the Euphratean sphere it seems that the figure of a Dog was placed behind the *Lion*, and flying from the latter, fearing lest it should turn round. Agreeably with this we find that the XIIIth Arabian *Manzil* (Lunar-mansion) is called *Al-'Auwâ* ('the Howler'); and Smyth, speaking of β *Virginis*, says, 'Piazzi calls it *Zavijava*, which is corrupted from *Záwiyat-al-'auwà*, the retreat of the barker. Ulugh Beigh has it *Min-al-'auwà—i.e.*, the stars of the barker, or barking bitch. These stars, β, γ, δ, and η [*Virginis*], and, according to Tizini, ϵ also, form the XIIIth Lunar Mansion; of which γ is termed by Kazwini *Záwiyah-'auwà* (the barker's corner), being at the angle of those stars' (*Cycle of Celest. Objects*, ii. 258). This *Dog* was not a separate constellation, but was included in the *Lion*, as, *e.g.*, the *Goat* (*Capella*) in *Auriga*. Proctor, speaking of ϵ, δ, γ, η, and β *Virginis*, says, 'For some cause or other . . . this corner was called by Arabian [and other] astronomers "the retreat of the howling dog"' (*Easy Star Lessons*, p. 109). The cause now appears, and it supplies an interesting instance of the connexion between the Arabian Lunar Mansions and Babylônia. As this *Dog* was not adopted by the astronomy of the West, his appearance here further illustrates the fact that Tablets such as these were not wholly the result of Greek influence, but proceeded on ancient Babylonian lines (Vide *inf.* No. 29). The star-title

in the original reads:—*Étsên-tsiri* (Ak. *Giskun*, 'Tail-tip') *Kalab A* (= *Arû*, 'Lion').

20. 'The end of the tail of the Lion,' = β *Leonis*, *Denebola* = (Ar.) *Dzanab-al-asad* ('Tail-of-the-Lion').

21. 'The easterly foot of the *Lion*,' = β *Virginis*. The howling *Dog* must have been represented as running away almost between the *Lion*'s hind legs.

22. 'The bright-one westerly of the *Ear-of-corn*,' = γ *Virginis*.

23. 'The one called *Ear-of-corn*,' = α *Virginis* (*Spica*. Vide *sup*. p. 65).

24. 'The southern *Claw*,' = α *Librae*. Cf. Ptol. *Claws*, Star No. 1.

25. 'The northern *Claw*,' = β *Librae*. Cf. Ptol. *Claws*, Star No. 3.

26. 'The middle-one of the head of the *Scorpion*, = δ *Scorpionis*. Cf. Ptol. *Scorpion*, Stars Nos. 1, 2.

27. 'The front-one of the head of the *Scorpion*,' = β *Scorpionis*.

28. This star is *Antares* (α *Scorpionis*). Epping and Strassmaier read 'Hurru (?),' Hommel reads '*Chabrud* (Bedeutung unsicher).' I do not remember to have seen the cuneiform ideograph elsewhere. If we divide its component parts, it reads (Ak.) *Gir-tab-bat* ('*Scorpion-of-death*'). The expression 'serpents of death' occurs in *W. A. I.* IV. v. vi., Col. ii. 41).

29. 'The star of the region in front of *Pa*,' = θ *Serpentarii*. *Pa* = *Papilsak*, the upper western part of *Sagittarius* (Vide *sup*. p. 78). Such a description shows that the Tablet is not the result of Greek teaching (Vide No. 19). No stars in *Sagittarius* or *Aquarius* happen to be mentioned in these Tablets; but adding from other tablets the usual stars occurring in those two Signs, we obtain a total of thirty-six zodiacal

stars or star-stations, an artificial number which I think, is clearly connected with the thirty-six names of Êa (*W. A. I.* II. lv.), considered as a zodiacal power, whether lunar or otherwise. These thirty-six stars supplied the origin of the theory of the Decans, or thirty-six Genii, who ruled the Zodiac, and whose late Graeco-Egyptian names are given by Julius Firmicus (iv. 16). Decanal 'theology' was a secret and important part of ancient astro-religious belief.

30. 'The horn of the *Goat*,' = α *Capricorni*.

31. 'The westerly-one of the tail of the *Goat*,' = γ *Capricorni*.

32. 'The easterly-one of the tail of the *Goat*,' = δ *Capricorni*, *Deneb-al-giedi*, (Ar.) *Dzanab-al-jady* ('Tail-of-the-Goat').

33. 'The *Cord* of the *Fishes*,' = η *Piscium*. Cf. Ptol. *Fishes*, Stars Nos. 20-22.

The other three stars making up the thirty-six would probably be :—

1. 'The star of the Left-hand' (of *Sagittarius*) = δ *Sag*. (Vide *sup*. p. 78). Cf. Ptol. *Archer*, Star No. 2.

2. 'The star of Nunpê' ('the Lordly-city,' = Êriduga, 'the Good-city,' = Êridu), = σ *Sag*.

3. 'The star of the Foundation,' = δ *Aquarii*, *Skat* ('the Leg'—of the *Water-pourer*).

Of course at this period, as at all others, the great majority of observations were made with reference to the Zodiac and to the planets its occupants. But so far as the evidence of Tablets such as these extends, it shows that the astronomers of the realm of Seleukos had a scheme of zodiacal and general constellations in many respects exactly similar, with the familiar exception of the *Balance*, to those which are at present in use. I have already mentioned (*Sup*. Chap. III.) the astronomical abbreviations of the twelve Signs of the Zodiac which were then in use. Some other connected terms are *ûmu*, *urru*, 'day,' *mûsu*, 'night,' *namâru*, 'morning,' *eribu*, 'evening,' *elâtum*, 'morning-heaven,' *lilâtum*, 'evening-heaven,' *mûsu-ana-namâru*, 'first-morning-dawn,' *man-du*, 'solstitium,' *suqalulu satti*, 'aequinoctium,' *sadû* (= 'the rising'), 'east,' *amurru* (= 'Amorite'-land), 'west,' *iltânu* (= 'the direction of winter'), 'north,' *sutu*, 'south,' *mahrû*, 'westerly,' *arkû*, 'easterly,' *elis*, 'northerly,' *saplis*, 'southerly.' Such was the character of Euphratean astronomy during its final or Graeco-Babylonian period. As it drew towards its close, the observations of Aristillos and Timocharis (Vide *sup.* p. 120), were paving the way for the Star-catalogue of Hipparchos. 'The *Almagest* contains the Declinations of eighteen stars observed by them for the epoch B.C. 283' (Knobel, *Chron. Star Cats.* p. 2); and, in the opinion of Montucla (*Histoire des Mathématiques*, i. 217) 'they were the first [Greeks] to entertain the idea of forming a Catalogue of Stars.' The two Greek astronomers are only known to us from references to their observations by Ptolemy; and they, like the other early star-gazers of active Hellas, would enter into the labours of their Euphratean predecessors.

The changeless nature of the general principles of astrology from Chaldaean times to the present day is illustrated by a passage of Plutarch, who says, 'Respecting the planets, which they call the birth-ruling divinities, the Chaldaeans lay down that two [*Venus* and *Jupiter*] are propitious, and two [*Mars* and *Saturn*] malign, and three [Sun, Moon, and *Mercury*] of a middle-nature and one common' (to both aspects. *Peri Is. kai Os.* xlviii.). That is, as an astrologer would say, these three are propitious with the good, and may be malign with the bad. The Sumero-Akkadian names of the five planets are given in *W. A. I.* III. lvii. No. 6, l. 65-7 as follows :—

Ilu *Sin* *û* *ilu* *Samas*,
'The-god the-Moon and the-god the-Sun,
ilu *Sul-pa-ud-du* (= *Mercury*),
the-god the-Messenger-of-the-Rising-sun,
kakkab *Dilbat* (= *Venus*);
the-star the Ancient-proclaimer ;
kakkab *Lu-bat* *kakkab*
the-star the Old-sheep (*i.e.*), the-Star
Sak-us (= *Saturn*); *ilu* *Lubat-gudibir* (= *Jupiter*),
the-Eldest ; the-god the Old-sheep-of-the-furrow-of-heaven,
kakkab Zal-bat-a-nu (= *Mars*) *sibu kakkabâni Lu-bati*
the-star Star-of-death, the-seven Old-sheep-stars' (are they).

It will be observed that the Sun and Moon are included in the list of planets, and the seven are regarded from a primitive point of view as the leading sheep, rams, or bell-wethers of the heavenly flock. Of course, each of the seven had various names; and, also as of course, considerable differences of opinion have arisen amongst Assyriologists on the questions of the transliteration, translation, and appropriation of these names. The difficulties of the investigation have been increased by the fact that in the case of two at least out of the five planets, the same name has been applied to one of them at one period, and to another of them in a later age. As sun, moon, and planets are very closely connected with all investigations into the origin and identification of the constellations, it is desirable, ere treating of earlier stellar records, to obtain a fairly clear understanding respecting the names of the seven planets of Babylonian astronomy. I will speak of them in the order in which they appear in the above list, namely, the Moon, Sun, *Mercury*, *Venus*, *Saturn*, *Jupiter*, and *Mars*.

1. *The Moon.* The following are the principal Sumero-Akkadian moon-names:—

Aku ('The Measurer'). This is the astronomical name of the Moon. The Ak. *aka*, is rendered by the Sem. *râmu* ('high'), *maladu* ('to measure'), etc., and is akin to the Turko-Tataric root *ak*, *ag*, etc., whence such words as the Uigur *ak-ari* ('emperor'), *ak-mak* ('to-sit-on-high'), etc. (Vide Vámbéry, *Etymol.* p. 7).

Aa, *Â*, *Ai* ('The Father'). Said to be a name of the Moon as spouse of the Sun-god (Vide Pinches, in *Proc.* S. B. A. Nov. 1885, p. 28). So Lenormant, 'La déesse lunaire Ai, épouse de Samas' (*Étude.* p. 16). Originally a male divinity (Vide Sayce, *Rel. Anct. Babs.* pp. 177-8, where an exclusively solar phase is given to him), and styled Nin-gan ('Lord-of-light'). The Eg. *aâh* ('moon') is perhaps a connected form, and the name reappears in numberless Turanian moon-words, such as the As.-Turkic and Osmanli *ai*, Siberian Tatar *ay*, Ostiak *i-re*, etc. (Vide R. B. Jr., *K.* p. 20; *Sem.* p. 149).

Idu, *Itu* ('Month'), = Sem. *Arkhu* ('Month'), must also have signified 'Moon' (Vide Lenormant, *Étude*, pp. 47, 282), since we read in Hêsychios Αἰδώς· ἡ σελήνη, παρὰ Χαλδαίοις. Another reading of the word in Hêsychios is 'Αϊδής, and the forms *Ai* and *Idu* also reappear in the name of the Homeric Αἰαίην νῆσον, abode of the moon-goddess Kirkê, 'own sister' of Αἰήτης (= *Ai-Itu*), Lunus (Vide R. B. Jr., *K.* p. 33).

The ordinary Assyro-Babylonian name of the Moon-god is Sin, which appears in various place-names, *e.g.*, Sinai. It has been suggested that *Sin* = an archaic Sum.-Ak. *Zu-en*, but this is altogether doubtful. Prof. Sayce observes that Sin 'at first appears to have denoted the orb of the moon only' (*Rel. Anct. Babs.* p. 164).

The moon was also called by the Sumero-Akkadai Nannar ('the Bright-one'), 'the strong Bull,' (*W. A. I.* IV. ix. 10), and Urû-ki ('the Protector-of-the-Earth'). Nannar and a variant form Nanak reappear in Greek mythic legend, the former as Ναννάρος, a satrap of Babylôn, the latter as Ναννάκος or Ἀννακός, a king of Phrygia (Vide Steph. Byzant. in voc. Ἰκόνιον). As darkness is prior to light and night to day, the Moon heads the seven planets.

2. *The Sun.* The ordinary Ak. name of the sun is *Ud*, *Ut*, *Utu*; he is also called *Utuki* ('the Great-spirit'), and, astronomically, *Kassêba* (= Sem. *Tsalam*, 'the Symbol'). His Sem.-Bab. name was *Sawas*, *Samas* (= Heb. Shemesh); so Hêsychios, Σαώς· ἥλιος. Βαβυλώνιοι.

3. *Mercury.* For *Sulpa-uddu* Prof. Hommel prefers to read *Dun-ghad-uddu* ('the Hero-of-the-rising-sun'). *Mercury*, and at times *Jupiter* (Vide Oppert, in *Zeit. für As.* vi. 111: Hommel, *Die Astron. der Alten Chaldäer*, ii. 5) are called by a name which has been transliterated *Sak-vi-sa* and *Sag-me-gar* ('The Face, voice of light'). *Sakvisa*, despite the objections of Jensen (*Kosmologie*, p. 124) appears to = Gk. Σεχ-έ-ς· τοῦ Ἑρμοῦ ἀστήρ. Βαβυλώνιοι (Hêsychios). The planet was also styled *Utu-altar* ('the Light-of-

the-heavenly-spark'), 'the Prince-of-the-men-of-Kharrân' (= Hârân, *i.e.*, 'the Highway'—to the West), *Dir* ('the Dim,' or perhaps 'the Blue,' and *Nabû* (LXX. Ναβὼ, 'the Proclaimer'—of the coming sun). Its late astronomical name was *Gudi-bir* (Vide *inf.*).

4. *Venus.* Is styled *Dilbat* or *Delebat* ('the Ancient-proclaimer'—of morn and eve). So Hêsychios, Δελέφατ· ὁ τῆς Ἀφροδίτης ἀστήρ, ὑπὸ Χαλδαίων. The planet was also called *Ninsi-anna* ('Lady-of-the-garden-of-heaven'), and *Mustelil* ('the Brilliant'), and was identified with Istar.

5. *Saturn.* Is styled *Lubat-sakus* ('the Old-sheep, the Eldest'), and *Sakus-utu* ('the Eldest-born-of-the-Sun-god'), as having gone the farthest into space. He is also called *Mi* ('the Black'), *Kus* ('Darkness'), *Zibanna* ('Life-maker-of-heaven'), and *Ginna* ('Commander'), which = the Sem. *Ka-ai-nu* (*K.* 4166), *Kaïwanu* or *Kaivanu*, Heb. Kiyyûn (Chiun, Amos, v. 26), As. Keyvân, Gk. Κίων ('Pillar').

6. *Jupiter.* The sun was the original *Gudi-bir* ('Bull-of-light'), a name which by reduplication was given to *Jupiter;* and, as noticed, ultimately to *Mercury.* In *W. A. I.* II. xlvii. 21 *gudibir* (otherwise read *gut-tav* or *gut-tam*) is said to be equivalent to the Sem. *pidnu sa samê* ('the furrow-of-heaven'), '*i.e.*, the ecliptic, to which Jupiter is near' (Sayce). *Jupiter* is called pre-eminently *the Lubat* or *Bibbu* (lit. 'quadruped,' met. 'planet'). The 'Bibbu-stars [are] properly the moving, retreating sheep = the planets' (Muss-Arnolt, *Concise Dict. of the As. Lang.* p. 142). *Jupiter* is also *Mustarîlu*, Ar. *Moschtarî* ('the Glittering,' 'Splendide lucens.' Ideler.); (Ak.) *Lugal-nerra*, (Sem.) *Sar-nêri* ('King-of-the-Yoke,'

i.e., the ecliptic); and *Nibiru* (‘the Strider-along’). MM. Epping and Strassmaier give his late astronomical name as *Te-ut*, but this I regard as incorrect. The *te*-form has also the value (Ak.) *mul*, (Sem.) *kakkab*, and the *ut*-form has also the value (Ak.) *babar*, (Sem.) *tsit-samsi* (‘sun-rise’). This name of *Jupiter* is therefore to be read *Mul-babar* (‘the Star-of-sunrise’ Μολοβόβαρ· ὁ τοῦ Διὸς ἀστήρ, παρὰ Χαλδαίοις (Hesychios).

7. *Mars*. In *W. A. I.* III. lvii. No. 6, l. 62-4, we have seven names of *Mars*. It is ‘the star *Mamma*’ (‘Nobody.’ Vide *sup.* p. 73). *Nakaru* (‘the Hostile’), *Tsarru* (‘the Enemy’), *Khul* (‘the Evil’), *Sarru* (‘the King’), *Zibu* (‘the Wolf’), and *Zalbat* (‘the Star-of-death’)-*anu*. This last appellation, the usual name of the planet, has generally been read *Ni-bat-a-nu*. Prof. Hommel reads *Zalbad*, and proposes to correct the reading Βελέβατος· ὁ τοῦ πυρὸς ἀστήρ. Βαβυλώνιοι (Hêsychios), to Ζελέβατος. This, of course, is tempting, and may perhaps be correct, but is a speculation only; and it is safer to take Hêsychios as we find him. Now, whilst no satisfactory interpretation of the form *Nibatanu* has ever been given, the reading *zal* may be supported on linguistic grounds. The cuneiform character in question may, in the abstract, be read either *ni*, *ne*, or *zal*, *zalli*, *ili*; and here, as frequently, the Turko-Tatar languages come to our aid. The Turko-Tatar root *jal*, *jil*, *zil*, *il*, means to ‘gleam,’ ‘glance,’ ‘sparkle,’ ‘warm’ (Vide Vámbéry, *Etymol.* p. 114); and from it are formed such words as the Uigur *jol-duz* (‘star’), and the Tchagatai *jal-au*, *al-au* (‘flame’). With *jal-au*, *al-au*, we may compare the Ak. *zal-li*, *il-i*, and may well read the sign in question *zal*, and under-

stand it as meaning 'bright,' etc., or simply as 'star.' *Zal* actually appears as an Ak. name of the sun (Sayce, *Syl.* No. 402). Thus, *Zalbat* will either mean 'the Bright (Fiery, Red)-one-of-death,' or simply 'the Star of Death'; and the Sem. interpretation of the name is *Mustabarû mûtanu* ('The Reveller-in-death.' Pinches. Vide *W. A. I.* V. xlvi. No. 1, l. 42). Mr. Pinches has suggested to me that 'the *a-nu* [in *Zalbat-anu*] is apparently the Semitic phonetic complement.' No Ak. name would end in this form, and as, according to Epping and Strassmaier, *an* or *anu*, in the late astronomy, = *Mars*, we may perhaps consider the name as a linguistic equation, *i.e.*, the Ak. *Zalbat* = Sem. *Anu*. The *Kakkab Bat-ga* ('Star of Death') mentioned in *W. A. I.* III. lvii. No. 2, l. 6, is doubtless *Mars*.

With respect to the name *Manma* (*Sup.* p. 347) the planet was also called (Ak.) *Nu-me-a*, (Sem.) *Baluv* ('That-which-is-not.' Vide *sup.* p. 73). Other names of *Mars* were *Gig* ('Plague,' 'Affliction'), rendered in Sem. by *Misallim mûtani* ('Agent of Deaths.' *W. A. I.* II. xlix. 40), and *Gallam-ta-uddua* ('the Bull-of-the-Rising-sun'), which in *W. A. I.* III. lvii. No 7, l. 5, 6, is explained as a name of *Zalbat*. The name *Khul*, *Gul* ('the Evil.' Cf. Ar. *ghúl*, which appears as a star-name in *Al-gol*, *β Persei*), is rendered by (Sem.) *Khum-khum* ('the Sultry.' *W. A. I.* II. li. No. 2, l. 66). *Simut* ('Red-light') was also a name of *Mars* (Vide *W. A. I.* II. xlviii. 54; III. lvii. No. 2, l. 2-5).

The above notice of planetary nomenclature, which is by no means exhaustive, will be sufficient for the present purpose. The planets are very frequently called 'gods' as well as 'stars,' although the use of the term 'god' is not absolutely restricted to them to the exclusion of the fixed stars. The five planetary gods are at times connected with more than one planet; thus Marduk may be linked with *Mercury* as a morning-star and with *Jupiter* as an evening-star. As of course, various intricacies of the astronomico-astrological system are still exceedingly obscure. Tablets which record observations naturally do not, as a rule, contain explanations; although the existence of the two utterly distinct languages of Sumero-Akkadian and Semitic Babylonian necessitated translations, and also at times fortunately occasioned the insertion of glosses. We do not expect to find the primary facts of astronomy, or the explanation and identification of the names of stars and of constellations in the astronomical observations of the present time, the reason of course being that every one concerned is perfectly familiar with these things. The modern tombstone does not explain the mystical meanings of the cross or anchor which may appear upon it. But this natural silence respecting the knowledge familiar to very early times must ever constitute one of the chief difficulties for posterity; and some of the most useful historical writers have been scribes who have recorded the thousand bits of information common to every one in their day, but which could not possibly have descended to later ages without their aid.

The *Lexicon* of Hêsychios, cir. A.D. 370, also contains the following forms of Euphratean words connected with Babylonian astronomy and religious belief:—

Ἀδαεί· μὴν παρὰ Χαλδαίοις. Sem. *Adar*.

Βήλθης· ἡ Ἥρα. ἡ Ἀφροδίτη. Sem. *Bîlat*, Gk. forms

Βααλτίς, Βῆλθις. *Balth'l* was the Aphrodîtê of the men of Hârân (Vide Chwolsohn, *Die Ssabier*, ii. 22).

Βῆλος· *ὀυρανός. καὶ Ζεὺς Ποσειδῶνος υἱός.* Sem. *Bîlu*, LXX. Βὴλ. A somewhat confused account in which the Ak. god Mul-lilla, Βολαθήν (= *Bêl-êthân*, 'the Elder-Bêl'), is confounded with the Bab. Bîlu-marûdûku (Βὴλ-*μαιρωδὰχ*), the son of Êa, which last-named divinity is rightly called Poseidôn.

Κόμβη· Κουρήτων *μήτηρ.* Cf. the Storm-god *Khumbaba*, Gk. Κομβάβος (*Peri tês Sy. The.* xix.), 'the Maker-of-darkness' (Boscawen), probably originally identical with the Elamite divinity *Khumba* or *Khumbu-me.*

Μαυσούρ· = Μαζουρώθ, Heb.-Ph. *Mazzârôth*, Bab.-As. *Mazârâti*, *i.e.*, the Signs of the Zodiac, Sum.-Ak. *Innun* ('the Watches'), the night-watches being marked by the transit of the constellations.

Μινδαλόεσσας· *ἀριθμά. καὶ τὰ περὶ ὀυράνια σύνταξις·* Βαβυλώνιοι. This term is evidently compounded of words connected with the Sem. *middoh* ('measure.' Vide *sup.* p. 138), and *osar* ('to bind'), As. *usuru* ('bound'). The celestial arrangement or encircling bond or bonds must be the ecliptic and other celestial circles.

Μύλιτταν· *τὴν* Οὐρανίαν. 'Ασσύριοι. Mylitta, Aphrodîtê Ourania (Vide Hêrod. i. 131). 'Istar is not called Mulidtu, "the bearer," in any of the texts we possess, but such might easily have been her popular title' (Sayce, *Herod.* p. 79).

'Ραμάς· *ὁ ὕψιστος θέος.* Bab.-As. Ramânu, Syrian Raman, LXX. 'Ρεμμαν, A. V. Rimmon (*Sup.* p. 219).

Σαλαμβώ· *ἡ* 'Αφροδίτη *παρὰ* Βαβυλωνίοις. The *Etymol. Mega* gives Σαλάμβας . . . *ἡ δαίμων.* The name is generally considered to represent Sala-ummu or Shala-ummu ('Shala, the Mother'), Sala ('the Compassionate') being an Ak. sun-goddess and wife of Dumuzi. This may be so, but the Ak. Kassêba ('the Sun') is rendered in Bab.-As. by *Tsalmu*, *Tsalamu*, which would = a sun-goddess Salamvô, Salambô. The Bab.-As. *Tsalamu* ('image,' 'symbol'), which is derived from the Ak. *alam*, a variant of *alad* ('a colossus') = '"the spirit," from *ala*, with the suffix *d*' (Sayce), *alal* or *ala* being a 'demon,' 'spirit.'

Σαραχήρω· παρὰ Βηρώσῳ, ἡ κοσμήτρια τῆς Ἥρας. *Kosmêtria* = *Kosmêteira* ('Orderer'), and was the name of the priestess of Artemis Ephesia, here identified with Hêra. As. *arâku* ('to arrange'), Heb. *orakh* ('to arrange in order'). *Σόραιχος* appears as a Bab. name in Iamblichos (Vide Chwolsohn, *Die Ssabier*, ii. 281).

Σάκαια· ἡ Σκυθικὴ ἑορτή. In the treatise *Peri tes Sy. The.* xii. it is stated that the general opinion was that the temple at Bambŷkê had been founded by 'Deukaliôn [*i.e.*, 'the Leader'] the Scythian.' In this passage *Σκύθης* has, very properly, been corrected by Lenormant and others to Sisŷthês, a variant of Sisithros, Xisouthros or Khasisadra, the Euphratean deluge-hero. A similar correction must be made here; the Sakaia is not a 'Skythian,' but a Bab., festival, and one, moreover, connected with Sisŷthês, being held in the XIth or deluge month. 'Bêrôsos, in the first book of his Babylonian history, states that in the XIth month, called [by the Macedonians] Lôos, is celebrated the feast of Sakaia, for five days, when it is the custom that the masters should obey their servants, one of whom is led round the house, clothed in a royal robe, and called Zoganês' (Athen.

xiv. 44, ap. Sayce), Ak. *sagan*, Bab. *sakanu*, from Ak. *saga* ('head'), 'the Head-man' (Vide Sayce, *Rel. Anct. Babs.* p. 68).

Σίν· τὴν σεμνήν· Βαβυλώνιοι. The reading here is somewhat doubtful, but, if correct, may supply a meaning, 'the Revered,' for the name of the famous Euphratean Moon-god.

Σιόαν· οὕτω καλοῦσι Χαλδαῖοι τὸν Πάνημον μῆνα. Sem. *Sivan.*

A now famous passage in the writings of that great Syrian philosopher, last of the Neo-Platonists, whom we call from the place whence he derived his name, Damaskios, is too important to be passed over here, inasmuch as it shows to what a late age the Chaldaean philosophico-religious principles and beliefs were preserved, and how clearly they were known to the later classical world. Moreover, all knowledge of Euphratean divinities tends to assist in the study of Euphratean stellar-lore. The Syrian states (*Peri Archôn*, cxxv.):—

'The Babylonians pass over Sigê' [This is generally rendered 'in silence', and written *σιγῇ*, and perhaps Damaskios so understood it.] = Ak. *Ziku*, *Zikum*, the primeval principle, 'the Mother that has begotten heaven and earth' (*W. A. I.* II. liv. 18),—'the one beginning of the whole, and make two,' Tauthê [= *Tiâmat*] and Apasôn, = *Apsû*, Sum. *Abzu* ('the Deep'). Tiâmat, Tiâvat, Heb. Tehôm ('the Deep') is the *Θαυάτθ* of Bêrôsos. 'Making Apasôn the husband of Tauthê, and calling her the mother of the gods; from these an only-begotten son has been produced Môÿmis', = Mummu ('Chaos'). 'And from these another progeny has come forth—Lachê and Lachos,' = Lakhmu and Lakhamu, *i.e.*, 'Light,' in kosmic couple, male and female. The circumstance that the Ak. *lakh*, *lakhkha*, = As. *misu*, 'pure,' makes Prof. Sayce say of Lakhmu and Lakhamu, 'It is possible that they denote the element of "purity"' (*Rel. Anct. Babs.* p. 388). But an abstract idea, such as 'purity,' is out of place in a kosmogony; and when we turn to the corresponding forms in the allied Turko-Tatar languages, *i.e.*, *jak*, *sak*, etc., for an initial *l* does not occur, we find at once the appropriate meaning, 'to appear,' 'to gleam,' 'light.' As in the *Genesis*-account, so here Zi ('the Spirit') moves upon the watery Tehôm and produces Lakhma ('Light'); but in the Euphratean account the Deep and the Light become Pairs. 'Then again a third (progeny arises) from these,' *i.e.*, from Tauthê and Apasôn. 'Kissarê [= Kisar, 'the Hosts-of-Earth'] and Assôros' [= Ansar, 'the Hosts-of-Heaven'], the Powers of the Lower and Upper Expanse, regarded together as constituting another divine couple. An-sar afterwards became Assur, the supreme god of the Assyrians. 'From which there were produced, Anos [= Ak. Ana, Sem. Anu], Illillos [= Illil, a contraction of En-lil, *W. A. I.* V. xxxvii. 21, a name of Mul-lil.] and Aos [= Êa]. And of Aos and Daukê [= Dav-kina, 'the Lady-of-the-Earth'] was born Bêlos, whom they say is the Demiurge.' A Babylonian version of this kosmogony (translated by Prof. Sace in *Rel. Anct. Babs.* pp. 384-5) quite agrees, except that Mummu-Tiâmat ('the Chaos-of-the-Deep') is made one person and the universal mother. This kosmogonical pedigree, a great and comparatively late philosophical effort, thus excellently preserved by Damaskios, reveals very clearly the Chaldaean

ADDITIONAL NOTES.

Page 32.—*Liber Pater and the Diadema.*

The Euphratean Sun-god (Ak.) Utu, (Bab.-As.) Samsu, Samas ('the Sun'), Heb. Shemesh, is the 'Lord-of-Crowns' (Tab. *M.* 192).

Page 67.—*The Scorpion-pair.*

Amongst the 'gods in the temples of Babylonia and Assyria' is mentioned *Tuâmu Giru* ('The Twin, the Scorpion.' *W. A. I.* III. lxvi. E. 21).

Page 98.—*Star No.* 1.

This star, *Sirius*, is doubtless that called (Ak.) *Ka-lik-ku*, (Sem.) *Lisân Kalbi* ('the Tongue of the Dog') in *W. A. I.* III. lvii. No. 5, l. 15.

Page 169.—*The Kabîrîm.*

In *G. D. M.* ii. 212 *et seq.* I have given a full account of the Kabeiroi, who, according to Mnaseas, the Alexandrian grammarian, were three, named Axiokersos, Axiokersê (Vide p. 227), and Axieros. There was also a fourth, known by Greek writers as Kasmilos. I have discovered the originals of these four titles in the names of four stars mentioned in *W. A. I.* III. lvii. No. 2, l. 2-5 (Vide *Sem.* p. 144). The cuneiform names are *Kas-mi-lu* (= Kas-mi-los), *Kas-khis-zu* (= Axio-ker-so-s), Kas-si-ki-su (= Axio-kers-ê) and *Kas-sa* (= Axie-r-os). A variant of Kasmilos is Kadmilos, 'Casmillus administer diis magnis (S. August. ap. Lobeck, *Aglaoph.* p. 1245), *i.e.*, Kabîrîm; and Kadmos also is connected with them. His name, as a god, *Qa-ad-mu*, appears in *K.* 2100 (Vide *Sup.* p. 2). The name *Kasmilu* had reached the Etruscans, but in a variant form. Thus, Macrobius says, 'Tuscos *Camillum* appellare Mercurium' (*Sat.* iii. 8). These identifications open out new vistas in connexion with that great *crux* the Kabeiric cult and ritual.

Page 230.—*Poseidon, 'the King.'*

The god of the Deep and the light-and-fire god are specially 'kings' (Vide pp. 32, 186). So, in the Homeric Theomachy it is Poseidôn and Apollôn who are called 'kings' (*Il.* xx. 67, 103). Thus, again, Êa (= Poseidôn) is particularly 'Êa, the King'

(*W. A. I.* III. lxvi. Rev. B. 27; Ob. F. 24), *Lugal abzu* (*Ib.* II. lv. 24), 'King of the Deep,' just as Poseidôn is Ἄναξ ἁλικράτωρ· As Êa is *En-an-ki* (*Ib.* l. 18), 'Lord-of-heaven-and-earth,' so is Poseidôn οὐρανίων τε θεῶν πάτερ ἠδὲ καὶ ἀνδρῶν. Poseidôn-Dagôn (Vide p. 188) is not merely the analogue of Êa; he is the reduplication of Êa in the West. Dagôn must be carefully distinguished from the Ak. Da-gan (Vide pp. 189, 226), a title of Mullil (*Sup.* p. 246), Bêl-labaru, Bêl-êthân ('the Elder Bêl'); but if Êa also (originally) = Sin, the moon-god (Vide Hommel, *Anc. Heb. Trad.* p. 65 *et seq.*), the epithet 'the Exalted' (Da-gan) would well apply to him. In Tab. *K.* 163 + *K.* 218 l. 36, the god *U-da-gan* is named. The passage is too mutilated for translation, but we are at once reminded of the Ὠδάκων of Bêrôsos (*Chal.* ii. 6), who, like other similar creatures mentioned by the Babylonian historian, had a form compounded of man and of fish. These fish-gods, brought by Kanaanites (Phoenicians) from their old Euphratean home (Vide *sup.* p. 268), reappear along the Palestinian seaboard, and subsequently invade the Aigaion. A careful comparison of the epithets of Poseidôn (Vide Bruchmann, *Epitheta Deor.* 1893, p. 194 *et seq.*) and Êa (Vide *W. A. I.* II. lv. 17-52) shows, in a remarkable manner, the former as a reduplication of the latter.

Page 244.—*Nin-ip.*

It seems probable that *Bér* was the ordinary pronunciation of the name of this god, formerly called Adar (Vide Sayce, in *Proc.* S. B. A. Nov. 1898, p. 261). At the same time he would also be known as Ninip, a fact which is confirmed by the appearance of the proper name Νινέψ in Gk. Kilikian inscriptions, where we also meet with Νάνη (= Bab. *Nâna*, 'the Lady'), and Νενάρις (= Bab. *Nannaru.* *Sup.* p. 56).

Page 274.—*The Pleiades.*

Another common Euphratean name for the Pleiad is *Kakkab* (Ak.) *Mul*, lit. 'The constellation *Star*,' *i.e.*, '*the* Star'; just as now β *Ursae Min.* is called *Kochab*, *i.e.*, *the* 'Star' (Heb. *kôkhâbh*, Bab.-As. *kakkabu*), a title which reminds us of its former supreme importance as the Pole-star. The Pleiad was *the* Star when *Taurus* led the year. Tab. *Sm.* 1907 is an Ak. text which treats of the constellation *Mul* and the 'Full-moon' (*Akû-lal*), as determining by their positions the length of the year. That we should interpret this passage as referring to

Mul (= the Pleiad), and should not render *Mul-Mul*, 'Star-of-stars,' and understand by this latter expression the star *Dilgan-Askar* (*Sup.* pp. 220, 222), is clear from other passages. Thus, Tab. *Rm.* 2,313 contains observations of various stars and constellations in this part of the heavens, including (1) *Nam-makh* ('the Mighty-destiny'), *β Aquarii*, *Sadalsund* = Ar. *Sa'd as Suûd* ('the Luck-of-lucks'), and the region adjacent, the Arabic name being a translation, or, at all events, an echo of the original Ak. appellation; (2), *Dilgan*, (3) *Kha*, Sem. *Nûnu* ('the Fish,' = some part of *Pisces*); (4) *Akhnâ* ('the Glow-worm-of-eclipse,' = *Mira, a Ceti*); (5) *Mul*, (6) *Gut-anna* (*Sup.* p. 57), also called *Gut-dûa* (*Sm.* 1082, 'the Bull-in-front'; (7) *Sibzianna* (*Sup.* p. 288), and (8) *Kaksisa* (= *Procyon*). The question of the identifications of various stars and constellations will be more fully entered into in Vol. II. We observe, therefore, *Dilgan* and *Mul* were distinct stars. Similarly, in *Tab.* 80-7-19, 100 we read:—1. *Kabkab Dil-gan ina arkhi Nisannu inna-mar* ('The Star *Messenger-of-light* in the month Nisan is-seen'). 3. *Kakkab Mul ina arkhi Airu inna-mar* ('The constellation *the Star* in the month Iyyar [the *Taurus*-month] is-seen').

In various tablets we meet with a star-god called *Îmina-bi* ('the Seven-fold-one'). Mr. L. W. King, commenting on Tabs. *K.* 6395 + *K.* 10138, l. 5, where we read, 'Powerful, O Seven-fold *one*, are *ye*', remarks: 'There is no doubt that the name was applied to a group of gods who were so closely connected, that, though addressed in the plural, they could in the same sentence be regarded as forming a single personality' (*Bab. Mag. and Sorcery*, 1896, p. 117). The star-combination of Pleiad-Pleiades (Vide *sup.* pp. 55, 134) exactly answers to such a description, although it could also be applied to other 7-star constellations, such as the *Bears* or *Ôriôn*. In Tab. *Sm.* 1082 *Ímina-bi* and *Gut-dûa* (Vide *sup.*) are mentioned side by side. This would exactly agree with 'Pleiads and Hyads' (Vide *sup.* p. 249). Tab. *Sm.* 1267 is very interesting in this connexion. We read:—

3. *Ilu* *Îmina-bi* *ana* *khadhdhu*
'The-god the-Sevenfold-one for (*i.e.*, as-a-portent-of) food
vanmûru *zêrû* *innamar.* *Kakkab* *Mul* *û*
(is) seen; the corn appears. The-constellation the-*Pleiad* and
kakkab *Mar* *istênis* *nazuzu*
the-constellation the-*Chariot* by-themselves are-fixed.

5. *Kakkab Lu-bat ana kakkab Mul iks-ud*
The-planet *Jupiter* to the-constellation the-Pleiad attained;
ilu Îmina-bi ikassid
the-god the-Sevenfold-one is-in-the-ascendant:
khadhdhu
food' (is plentiful).

There is nothing here to show that 'the god *Îmina-bi*' is distinct from 'the constellation *Mul*.' On the contrary, the principle of Semitic parallelism strongly suggests their identity. *Îmina-bi*, like the Pleiad, is connected with the harvest and with abundance. As *Jupiter* attains to *Mul*, we observe that the latter is an ecliptic constellation, and therefore cannot be *Dilgan-Capella*. The *Chariot* (Sem. *Narkabtu*) referred to, is probably that of *Auriga*, which adjoins the Pleiad. (Vide *sup.* p. 338).

The star-name *Akh-nû* above mentioned (Vide *sup.* p. 358) is compounded of ideographs signifying Worm + Eclipse. The Rev. Wm. Houghton (*Trans.* S. B. A., vi. 480) has suggested that the ideograph for 'small worm' represents 'a star' or 'brightness' 'placed within a circle, and [that] the whole [may] be referred to some species of glow-worm.' It will be observed how suitable such a name as 'Glow-worm-of-eclipse' would be for the star *Mira* ('the Wondrous'), which 'during each interval of eleven months passes through the following phases: during fifteen days it attains and preserves its maximum brightness, which is equal to that of a star of the second magnitude. Its light afterwards decreases during three months, until it becomes completely invisible . . It remains in this state during five months, after which it re-appears, its light increasing in a continuous manner during three other months. Its cycle of variability is then ended, and it attains again its maximum brightness' (Guillemin, *The Heavens*, 7th edit., p. 306). Such long and careful observers as the Babylonians would be sure to detect the wonders of *Mira*. *Akhnâ* is also mentioned in Tab. *Rm.* 2, 309; and in *K.* 11729, with *Gar* (= *Narkabtu*, vide *sup.*), *Dilgan*, and other stars.

Page 338.—*Cancer and some Stars adjacent.*

The constellations and stars as shown are:—

Mastabba-galgal, Sem. *Tuâme-rabûti*, 'the Great-twins' (*Gemini*).

Mâsu-mahru, 'the Westerly-twin' (*Castor*, α *Gem.*).

Mâsu-arkû, 'the Easterly-twin' (*Pollux*, β *Gem.*).

Nagar-asurra (otherwise *asagga*), 'the Workman-of-the-River-bed' (*Cancer*).

Allab, 'the Hero,' explained in *W. A. I.* II. xlviii. 55 A, as *Kul-samsi-asri*, 'Voice-of-the-Sun-place,' *i.e.*, the highest point in the ecliptic, the 'Gate of *Cancer*' (ε, η, θ, γ, δ *Cancri*). The *Manger* and *Asses;* δ and γ were known as the *Jugulae* ('*Yokes*'), a title derived from a Euphratean original.

Mahru sa Nangaru sa iltânu, 'the Westerly-one at the north of the *Crab*' (γ *Cancri*).

Lib-Nangaru, 'the Middle of the *Crab*' (ε *Cancri*), *Praesepe*, 'the Manger.' This is *kammeda*, 'nebulous.' (Vide *sup.* 59.)

Mahru sa Nangaru sa sûtu, 'the Westerly-one at the south of the *Crab*' (θ *Cancri*).

Arkû sa Nangaru sa sûtu, 'the Easterly-one at the south of the *Crab*' (δ *Cancri*).

Pallika, 'the Crossing-of-the-Water-dog' (*Canis Min.*). A lunar asterism.

Kaksisa, 'the Leader' (*Procyon*, α *Can. Min.*), called (Sem.) *Mêsrê* ('Leader,' 'Director') and *Sukudu* ('the Restless,' impetuous).

Lulla, 'the Fox' (α *Cancri*). Otherwise *Lul-a ;* named with *Mastabba-galgal*, *Kaksisa*, *Lugal* and *Allab*, amongst the 'twelve Stars of the West' (*W. A. I.* II. xlix. No. 1).

Lik-makh, 'the Lion' (*Leo*). Sem. *Arû*.

Gisbar, 'the Wood-of-light' (η, γ, ζ, μ, ε, λ *Leonis*). Called a 'god' in *K.* 163 + *K.* 218. A lunar asterism.

Gam, 'the Sickle' (Same stars). This name remains in use at present, these six stars forming, with *Regulus* (*Lugal*), the *Sickle* of *Leo*. *Gam*, called 'the weapon of *Merôdakh*' (*W. A. I.* V. xlvi. 3) is an exact stellar reduplication of the *khereb*, *harpê*, sickle, of Kronos and Perseus (Vide *sup.* pp. 179-80). This *Gam* is distinct from *Gam*, the lunar asterism mentioned in *W. A. I.* V. xlvi. 3.

Lugal, 'the King,' Sem. *Sarru*, Gk. Βασιλίσκος, Lat. *Regulus* (α *Leonis*. Vide *sup.* p. 62). Another name still in use.

Mâru sa ribû arkat Sarru, 'the Small-one in the region after the *King*' (ρ *Leonis*).

Ris-Arû, 'the Head-of-the-Lion' (ε *Leonis*).

Katsir-ninake, 'the Month-of-the-Snake-drinks' (θ, ζ, ρ, ε, δ *Hydrae*).

Alla, Sem. *Tsîru*, 'the Snake' (*Alphard*, α *Hydrae*). This star is called *Alla*, which is explained as *Tsi-i-ru* (Vide Brünnow, *Class. List*, p. 249), in Tab. *K.* 7010.

Tsir-gal, 'Great-snake' (*Hydra.* Vide *sup.* pp. 104-6). Called a 'god' in *W. A. I.* III. lxvi. 26 B. The seven-headed *Tsir-makh* ('Mighty-snake') of *W. A. I.* II. xix. 13. Nabukudurra-utsur III., when he restored Bâbilu, set up huge bulls and serpents of bronze at the thresholds of the gates (*Cylinder* 68-7-9, 1. l. 20-22). In an interesting text, *Tab.* 81-2-4, 224, which treats of various mystical Serpents, the *Tsiru-gal-lu* is apparently identified with 'the Serpent of Anu'; and, in a constellational aspect, may be *Hydra.* In this case, 'the Serpent of Êa,' also mentioned, will probably be 'the River of the Snake,' *i.e.*, Êa's river, the Euphratês, and, in a constellational aspect, *Eridanus* (Vide Sayce, *Rel. Anc. Babs.* p. 281).

(Ak.) *Kas Utu*, (Sem.) *Kharrân Samsi* (*Sup.* p. 48), 'the Sun-path' = the Ecliptic.

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